DOCUMENT RESUME

ED 143 519 SE 022 997

TITLE	ELMA Technical Reports, No. 1. Kindergarten Test Batteries, Description and Statistical Properties of Scales.
INSTITUTION	Stanford Univ., Calif. School Mathematics Study Group.
SPONS AGENCY	National Science Foundation, Washington, D.C.
PUB DATE	71
NOTE	371p.; For related documents, see SE 022 998-SE 023 000; Contains occasional light type
EDRS PRICE	MF-$0.83 HC-$19.41 Plus Postage.
DESCRIPTORS	*Achievement; Arithmetic; Elementary Education; *Elementary School Mathematics; Evaluation; *Kindergarten; Mathematics Education; *Number Concepts; Test Results; *Tests
IDENTIFIERS	*Elementary Mathematics Project; *School Mathematics Study Group

ABSTRACT

In the fall of 1966, the School Mathematics Study Group embarked upon a four-year longitudinal study of mathematical learning in the primary grades, the Elementary Mathematics Project (ELMA). The primary purpose of the study was to assess children's progress in learning particular mathematical ideas during the beginning school years. This volume contains information related to the kindergarten tests. The first part of the volume contains procedures for giving the tests and the test batteries. The second part of the volume contains the description and statistical properties of the kindergarten scales derived from these test batteries. (RH)

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MATHEMATICS
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ELMA TECHNICAL REPORTS

No. 1

Kindergarten Test Batteries, Description and Statistical Properties of Scales

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SE 022 997

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FOREWORD

In the fall of 1966, the School Mathematics Study Group embarked upon a four-year longitudinal study of mathematical learning in the primary grades, the Elementary Mathematics Project (ELMA). The primary purpose of this study is to assess children's progress in learning particular mathematical ideas during the beginning school years. With these findings, the possibility exists of developing, in the future, more effective materials and procedures for teaching children coming to school with differential pre-school experiences as well as better understanding young children's learning of mathematics.

The pilot phase of this longitudinal study was undertaken from 1964 to 1966 in the Special Curriculum Project* during which time the tests for kindergarten and Grade 1 were developed, pre-tested, and modified.

The study population included approximately 2,000 children entering kindergarten in September, 1966, in selected schools in two large cities. The schools selected met two criteria: they drew on residential areas which were predominantly either lower or middle income groups, and each particular group of elementary schools fed into a common junior high school. Within one city, four cells were formed, two each from lower income areas and two from middle to higher income areas. One lower and one middle income cell were using the School Mathematics Study Group curriculum, and the other, comparable cells were using the Science Research Associates program which is the state adopted mathematics textbook series in California for the primary grades. In the second city, three cells were formed, the omitted cell being the middle income SMSG curriculum group. The data in this volume are reported for City 1.

The children were tested twice a year, one battery in the fall and another in the spring, starting in kindergarten and extending through Grade 3. The format of the tests gradually moved from individually administered, object-oriented tests to group administered, printed tests as the children became better able to comprehend and attend to printed materials and verbal directions in a group situation. Various standardized intelligence tests (one per year) were also administered by ELMA in the middle of first three school years. Attitude scales were given in Grades 2 and 3. In addition, the results of standardized tests administered by the school systems participating in ELMA were obtained and included in the data analyses.

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*The two SMSG publications which report on the Special Curriculum Study are: Leiderman, Gloria F., Chinn, W. G., and Dunkley, M. E., _SMSG Reports No. 2, The Special Curriculum Project: Pilot Program on Mathematics Learning of Culturally Disadvantaged Primary School Children_. Stanford University, 1966; and Chinn, W. G. and Summerfield, Jeanette O., _SMSG Reports No. 4, The Special Curriculum Project_: 1965-1966. Stanford University, 1967.

Test administrators were carefully chosen for each battery from graduate students and primary teachers with course work or experience in psychological testing plus experience in working with young children. All testers were required to attend training sessions before each test battery. Throughout the training sessions, emphasis was placed on the importance of careful adherence to the instructions when giving the tests.

GUIDE FOR THE USE OF THIS VOLUME

The first part of this volume contains the test batteries which were administered during the first year of the Elementary Mathematics Project. The Introductions to the Kindergarten Fall Test Battery and the Kindergarten Spring Test Battery on pages 3 and 87 describe the format and information to be found in this part of the report.

The second part of this volume contains the description and statistical properties of the Kindergarten scales derived from these test batteries. Figure 1 is a sample page from this part of the report. The information for most scales is in this basic format. (Those scales describing ratings by the tester are reported in a different format.)

A Key for explaining Figure 1 follows:

1. Grade Level and Time of Administration. Two pieces of information are indicated for each scale: (1) the grade level of the students taking the scale, and (2) whether it was given in the fall or the spring.

2. Form Number. The form number of the test in which the scale is included.

3. Scale Identification Code. Each code number consists of a three-digit number. The first digit indicates when a scale was administered: "0" for the fall of the first year, "1" for the spring of the first year, etc. The second and third digits number the scales within a test battery. For instance, scale code 110 indicates a scale from the spring, first year test battery which is scale number 10 from that battery. Not all code numbers used during the first year of the study are reported in this volume. (Those assigned for weighted scores of selected scales and for internal identification purposes are not included.)

Kindergarten ①
Spring

② Form K-02
③ Scale 110

110 ③ COUNTING MEMBERS OF A GIVEN SET ④ - PICTURE CARDS ⑤ (10 items)

⑥ Cardinal counting ability is assessed in this scale by requiring the child to count the number of members in a set (pictures of familiar objects on a card). The pictures are arranged in symmetric patterns on some cards and asymmetric patterns on others. This scale is similar to 111 except that pictures of objects are used here rather than objects. Another method of assessing cardinal counting is used for 106. Scale 110 is the same as 204; it is an extension of 109, 151, and 152.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

⑦ Items 16 - 25   Pages 126 - 132

SCALE STATISTICS:

⑧ NUMBER OF CASES = 1185
⑤ NUMBER OF ITEMS = 10
⑨ MEAN TOTAL SCORE = 6.432
⑩ STANDARD DEVIATION = 2.914
⑪ CRONBACH'S ALPHA = 0.855
⑫ ERROR OF MEASUREMENT = 1.108

ITEM STATISTICS:

⑬ ITEM	⑭ P'S	⑮ ADJ. P'S	⑯ N.S. BIS	⑰ PERCENT NT
16	0.926	0.926	0.701	0.0
17	0.659	0.659	0.591	0.0
18	0.841	0.841	0.812	0.0
19	0.732	0.753	0.751	2.700
20	0.784	0.867	0.892	9.536
21	0.640	0.752	0.845	14.937
22	0.602	0.759	0.849	20.675
23	0.550	0.749	0.852	26.498
24	0.422	0.627	0.732	32.658
25	0.277	0.457	0.612	39.494

Figure 1

4. Scale Name. The scale name is usually descriptive of the content of the scale (e.g., Writing Numerals, Ordering Geometric Shapes, or Counting Buttons). In some cases an S (either alone or followed by a number) follows the scale name to indicate a shortened scale that includes only selected items from another scale. If only one scale within a test battery is composed of a sub-set of items, an S follows the scale name. If more than one shortened scale is reported, each new sub-set is assigned a sequential number after the S.

5. Scale Length and Sub-Group Information. The number of items in the scale is indicated in parentheses following the scale name. This number is also reported in the second line under the Scale Statistics. If the scale was administered to less than the entire population, the nature of the sub-group is indicated.

6. Scale Description. A brief description of the scale is given, telling what the scale is designed to measure, and giving any special information about the scale. In particular, cross-referencing is given to other scales that are the same as the scale being described. This cross-referencing is done across years. If a scale is an extension or shortened form of another scale within a test battery, that information is also noted.

7. Item and Page Reference. The item numbers and the pages in the first part of this report where the items are reproduced are recorded for reference.

8. Number of Cases. The data in this volume are reported on the total number of students to whom the scale was administered in the test center which had all four cells (low income-SMSG, low income-SRA, middle income-SMSG, and middle income-SRA, i.e., City 1).

9. Mean Total Score. This is the mean for scale scores. The scale score is the number of items correct.

10. Standard Deviation. The standard deviation of scale scores.

11. Cronbach's Alpha. The coefficient alpha is an estimate of the internal consistency reliability of the scale.

12. Error of Measurement. The standard error of measurement of a scale is an index of the extent to which scores would vary over similar tests. It is a function of the standard deviation and alpha,

$$(\text{ERR.MEAS}) = (\text{ST.DEV}) \sqrt{(1.0 - \text{ALPHA})}.$$

It can be used to establish a confidence interval around an obtained score to estimate the region in which a true score probably lies.

13. Item. This is the number of the item for which the statistics are reported. Page references for all items in the scale are given in 7 above.

14. Item Mean. P is the mean on the item for all students in the sample.

15. Adjusted Item Mean. ADJ. P for an item is the mean for all students who attempted the item. Not tried responses eliminate the student from the calculation of ADJ. P. An item is defined as not tried if there was no response to the item.

16. Biserial Correlation. N.S. BIS is given as an index of item discrimination.

In general, the biserial correlation is a correlation between a discrete variable (e.g., a test item) and a continuous variable (e.g., a total test score).

The biserial correlations given in this volume are non-spurious. That is, these correlations are between the item and the total scale score with the item removed. These non-spurious correlations are sometimes referred to as "item vs. item-remainder correlations," the correlation of the item with the remainder of the scale.

17. Percent Not Tried. The percent of students for whom the item was not tried is indicated by PERCENT NT.

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KINDERGARTEN

FALL TEST BATTERY

FORM K-01

INTRODUCTION

Kindergarten - Fall Testing

Form K-01

The initial test battery given in September of the kindergarten year, referred to as K-01, was planned as an evaluation of readiness for learning mathematical concepts. The tests were developed to minimize possible differential between disadvantaged and more advantaged children in handling the test situation and materials. The battery was administered to the children individually. The tests were devised so that the children responded, in most tasks, to concrete materials. When printed drawings were employed as test materials, they were used as parallel forms to those tests utilizing concrete objects. Verbal directions given by the tester were brief, simple statements, and verbal responses were necessary in only a few of the test items. For those items requiring the children to make a verbal response, a single word or short phrase was sufficient.

Although the test took about forty minutes to administer, both the task and the materials varied frequently during this period of time. Thus, the requirement of a long attention span for good performance on K-01 was considerably reduced.

Approximately thirty testers were needed to insure that every child be tested within three weeks after the opening of schools in the fall. All testers attended a training session shortly before testing began in which the manner of administering the tests was demonstrated and a few changes in the written test directions were explained. In the test directions which follow, all modifications that were made in the original test instructions are noted.

The directions to testers concerning preparations for testing, general rules to follow, etc., are reproduced on the following pages.

The pupil score sheet used by the testers to record responses for Form K-01 is reproduced in its entirety. For the reader's convenience, the section of the score sheet which pertains to a particular scale is also reproduced immediately after the test directions.

GENERAL INSTRUCTIONS TO THE TESTERS FOR
ADMINISTERING K-01 TESTS

September Inventory, 1966 -- Kindergarten   Form K-01

GENERAL DIRECTIONS

1. Setting for Administration of Tests

It is important to have a separate room, if at all possible, so that interruptions and distractions are minimized.

In introducing these tests to the child, make certain that they are always referred to as games and not as tests. The child will feel more comfortable if this is not presented as a testing situation and if the tester chats with the child to put him at ease before starting.

2. Equipment

You will need a table and two chairs. Preferably, the table and chairs should be low (from the kindergarten or first-grade classroom) so that they are a comfortable height for the child. Seat the child across the table from you.

The materials you will need are those supplied and include:

2	sets of geometric shapes
50	buttons
4	boxes with tops
	pads of paper
	crayons
1	set of 8 cards marked on the back, "Counting Members of a Given Set"
10	envelopes with buttons inside and numerals on them
1 each	objects for Visual Memory: airplane, apple, block, book, box, button, car, spoon, clock, crayon, horse, key, and pencil
12	blocks
2	sheets of construction paper
1	set of 6 cards marked on the back, "Equivalent Sets"
5	trucks
25	marbles

4 sets of geometric shapes for Ordering and Classifying (marked: Set I, III, V, VII)

5 sets of pictures for Visual Memory

2 sets of color cards

3. Procedure

Read over the instructions for administering the tests several times, and become familiar with the materials before you start testing your children.

The instructions for you, as tester, are typed in lower case. What you actually say to the child is typed in capital letters.

Follow the written directions carefully. Do not probe to get an answer beyond what is suggested in the directions. This is an evaluation and should not be used as a teaching situation.

Use reassurance without specifying that responses are right or wrong. This may be done in a variety of ways:

Repeating what the child has said in a reassuring voice.
Remarks such as "Um - Hum," "All right."
Comments between tests such as "You do these very well."
Conversation with the child between tests.

In order that the child not experience failure, certain tests are not to be continued if the child fails three consecutive tasks in that part of the test. This will be noted in the instructions for the specific tests.* On tests such as Ordering, you will continue the entire test whether the child misses three consecutive tasks or not.

Keep all equipment in a box under the table to your right. Place on the table only those items required for a given task, along with the instructions and score sheets for that particular task. Remove materials used for a task from the table before beginning the next part of the testing.

You will find that many of the children become fascinated by the toys being used as test materials. This may interfere with their attention to the task itself. In these instances, tell the child that he will have a chance to play with the toys after you and he have finished the games you will do together. Make certain that you do, then, permit the child to have a few minutes to play with the toys he found most interesting. This can be done without spending much extra time by allowing the child to play while you are sorting your materials and getting them ready for testing the next child.

---

*In the tester training session, the testers were instructed to discontinue testing after a total of three errors rather than after three consecutive errors on those tests where such directions would be applicable.

4. Scoring

The scoring sheets should be completely filled out.

Be certain to enter the child's name, school, teacher's name, tester's name, and whether the child is in an a.m. or p.m. kindergarten on each scoring sheet. It is important to use the "Comments" space whenever relevant. These comments will be helpful in two ways:

(1) in following the progress of each child.
(2) in revising the tests.

In certain of the tasks, specific comments are requested (e.g., Ordering). Be certain to enter comments where specifically noted and at any point where they are relevant to understanding the child's response. If doubtful about the correctness of a response, do not check the response as correct or incorrect, but write down exactly what the child said in the "Comments" space.

5. Rating the Child's Behavior

The last two items on page 4 of the Pupil Score Sheet, entitled Response to Verbal Directions and Attention to Tasks, are rating scales. These are included as a method of evaluating the child's behavior in the testing situation. Make a rating on each of these two scales as soon as you finish testing the child. Mark the point on each scale that best describes a given child's behavior on these particular dimensions during the testing situation.

6. Important Considerations

In order for these test results to be meaningful:

(1) it is imperative that the tester adhere to the written directions as closely as possible. Rapport with the child is crucial; however, cueing the child beyond the written directions invalidates the results.

(2) it is imperative that recording of children's performances on the score sheets be as accurate as possible. Score sheets may be completed in pencil; overemphasis on neatness may be unnecessarily time-consuming. Entries should be legible and accurate; neatness is not a primary consideration.

(3) it is imperative that every subtest be completely recorded.

(4) it is imperative that the testing be scheduled so that you will finish testing the children assigned to you by the end of September.

5

PUPIL SCORE SHEET **Kindergarten: Fall Inventory, 1966** Form K-01

Pupil's Name: ____________________
School: ____________________
City: ____________________

Class: a.m. p.m. (circle one)
Teacher's Name: ____________________

Tester's Name: ____________________
Date Given: ____________________

GEOMETRIC SHAPES

	Matching		Correct Response (✓)	Incorrect Response (✓)	No Response (✓)
1	1	Circle			
2	2	Square			
3	3	Triangle			
4	4	Rectangle			

Naming

5	1	Square			
6	2	Triangle			
7	3	Rectangle			
8	4	Circle			

Identifying

9	1	Triangle			
10	2	Rectangle			
11	3	Circle			
12	4	Square			

Comments:

COUNTING BUTTONS

	Number Asked	Correct (✓)	Incorrect (✓)
13	3		
14	5		
15	4		
16	6		
17	8		
18	7		
19	9		

WRITING NUMERALS

	Numeral	Formed Correctly (✓)	Attempted, but Incorrect (✓)	No Attempt (✓)
20	3			
21	5			
22	4			
23	6			
24	8			
25	7			
26	9			

Comments:

COUNTING MEMBERS OF A GIVEN SET

	Card No.	Counted Correctly (✓)	Attempted, but Incorrect (✓)	No Attempt (✓)
27	1			
28	2			
29	3			
30	4			
31	5			
32	6			
33	7			
34	8			

Comments:

IDENTIFICATION OF NUMERALS

	Numeral	Identified Correctly (✓)	Attempted, but Incorrect (✓)	No Attempt (✓)
35	3			
36	1			
37	4			
38	5			
39	0			
40	8			
41	7			
42	9			

Comments:

VISUAL MEMORY - OBJECTS

		Original Set	Removed Object	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	Comments
43	1	Car Horse Block Pencil					Button Clock Horse Spoon			
44	2	Spoon Airplane Crayon Key					Key Car Box Pencil			
45	3	Book Apple Clock Box					Crayon Block Button Clock			
46	4	Car Book Airplane Block					Apple Key Car Horse			
47	5	Pencil Key Crayon Button					Clock Block Book Crayon			

VOCABULARY

	No.	Word	Correct (✓)	Incorrect (✓)	Comments		No.	Word	Correct (✓)	Incorrect (✓)	Comments
48	1	Behind				58	11	Fewer than			
49	2	Above				59	12	Join			
50	3	Bottom				60	13	Below			
51	4	Between				61	14	Left			
52	5	Each				62	15	Outside			
53	6	Tallest				63	16	Inside			
54	7	Remove				64	17	On			
55	8	Set				65	18	Right			
56	9	More than				66	19	Shorter than			
57	10	As many as				67	20	Top			

EQUIVALENT SETS

(Check two columns for each card: correct or incorrect and one column describing how set was formed)

Equivalent set formed by:

	Card #	Correct (✓)	Incorrect (✓)	(✓) Copying Pattern	(✓) Counting	(✓) Other (Explain)
68	I			69		
70	II			71		
72	III			73		
74	IV			75		
76	V			77		
78	VI			79		

Comments:

ORDINAL NUMBER

		Correct (✓)	Incorrect (✓)
80	First		
81	Third		
82	Fifth		
83	Fourth		
84	First		
85	Last		
86	Second		
87	Fourth		

Comments:

Set I Circles

88 Sorted
(Circle total number of circles sorted)

0 1 2 3 4

Did child include other shapes in addition to the circles sorted?

Yes _____ No _____

If yes, what? ________________

89 How Ordered?
(Check the 1 appropriate box)

Largest to smallest ☐
Smallest to largest ☐
Randomly ordered ☐

90 Handed smallest circle

Yes _____ No _____

Comments:

Set III Triangles and Red

91 Sorted
(Circle total number of triangles and red sorted)

0 1 2 3 4

Did child include other shapes in addition to the red triangles sorted?

Yes _____ No _____

If yes, what? ________________

92 How Ordered?
(Check the 1 appropriate box)

Smallest to largest ☐
Largest to smallest ☐
Randomly ordered ☐

Comments:

Set V Same Size

93 Sorted shapes of same size without prompting: (Circle 1 numeral for each shape)

Square	0	1	2	3	4
Rectangle	0	1	2	3	4
Triangle	0	1	2	3	4
Circle	0	1	2	3	4

Sorted after prompting:

Square	0	1	2	3	4
Circle	0	1	2	3	4

If no prompting necessary after initial directions, check here _____

Comments:

Set VII

A. Smallest members
94 (Circle total no. sorted) 0 1 2 3 4

Did child include other shapes in addition to the smallest members sorted?

Yes _____ No _____

If yes, what? ________________

B. Handed smallest red circle Yes ___ No ___
95 If No, error was shape ___ size ___
color ___

C. Handed largest yellow rectangle
96 Yes _____ No _____
If No, error was shape ___ size ___
color ___

D. More triangles or red squares
97 correct (more triangles) ___
incorrect (more red sqs.) ___

E. More circles or blue rectangles
98 correct (more circles) ________
incorrect (more blue rects.) ___

ROTE COUNTING

➡

										99
										100

Comments for Rote Counting:

Comments for Set VII:

VISUAL MEMORY - PICTURES

		Original Set	Removed Picture	Recalls			New Set	Correct	Incorrect	Comments
				1st	2nd	3rd				
	Pr	Engine Fish	Engine				Mouse Engine			
101	1	Cat Boat Tree Crayons	Boat				Boat Book Bottle Turtle			
02	2	Book Car Bird Apple	Bird				Kite Bird Crayons Fish			
103	3	Dog Bottle Hat Flower Clock	Dog				Cone Car Rabbit Umbrella Dog			
104	4	Truck Cup Rabbit Ball Umbrella	Ball				Engine Ball Tree Clock Cat			

COLOR INVENTORY

	Matching		Correct Response (✓)	Incorrect Response (✓)	No Response (✓)
105	1	Green			
106	2	Blue			
107	3	Orange			
108	4	Brown			
109	5	Red			
0	6	Yellow			

Comments:

Naming

111	1	Orange			
112	2	Blue			
113	3	Red			
114	4	Black			
115	5	Brown			
116	6	Yellow			
117	7	Green			

Identifying

118	1	Red			
119	2	Brown			
120	3	Green			
121	4	Orange			
122	5	Yellow			
123	6	Blue			

A. RESPONSE TO VERBAL DIRECTIONS 124

(Mark appropriate space)

(a) No compliance. Did not do what was asked ☐

(b) Little compliance. Did not do what was asked in most instances unless controls used. ☐

(c) Some compliance. Did (or tried to do) what was asked in some tasks. ☐

(d) Full compliance. Did exactly (or tried to do) what was asked on each task. ☐

B. ATTENTION TO TASKS 125

(Mark appropriate space)

(a) Attended well to all tasks ☐

(b) Attended well to some tasks but not all ☐

(c) Attention wandered periodically ☐

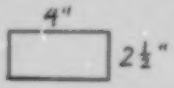
(d) Inattentive unless continually directed ☐

GEOMETRIC SHAPES - MATCHING

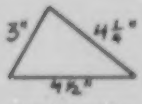
TEST MATERIALS:

2 sets of monochromatic geometric shapes cut from light-weight cardboard

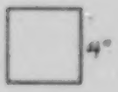
Child's Set:



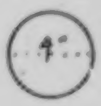
rectangle



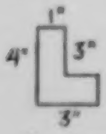
triangle



square



circle



L-shape

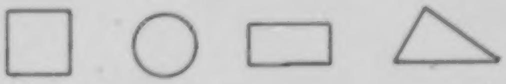
Tester's Set: the first four shapes of the child's set; the L-shape is excluded.

TEST DIRECTIONS:

I HAVE SOME SHAPES HERE.

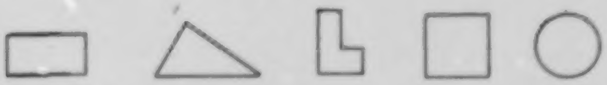
I AM GOING TO PUT THEM ON THE TABLE.

Place the set of shapes in front of you. Arrange from your left to right: square, circle, rectangle, triangle.



NOW I AM GOING TO PUT SOME ON THE TABLE FOR YOU, TOO.

Place the set of shapes, including the L-shaped region in front of the child, starting from your left to right: rectangle, triangle, L-shape, square, circle.



Touch your circle but do not name it.

GEOMETRIC SHAPES - MATCHING (continued)

LOOK AT THE SHAPE I AM TOUCHING.

PUT YOUR FINGER ON THE SHAPE IN YOUR SET THAT IS JUST LIKE THIS ONE.

If the child does not respond, or touches tester's shapes, say:

PUT YOUR FINGER ON ONE OF THESE SHAPES (pointing to the child's set) THAT IS JUST LIKE THIS ONE (pointing to your circle).

Proceed, using above directions, with square, triangle, rectangle.

Continue with Naming and Identifying parts of this assessment whether or not the child has made three consecutive errors* in Matching.

Matching

Item No.		Correct Response	Incorrect Response	No Response
1.	Circle			
2.	Square			
3.	Triangle			
4.	Rectangle			

Tester's Scoring Grid

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*This comment refers to instructions given in the tester training session that, in order to avoid the child experiencing too much failure, certain tests were to be discontinued after the child had made three errors.

GEOMETRIC SHAPES - NAMING

TEST MATERIALS:

The child's set of geometric shapes as described in 001.

TEST DIRECTIONS:

Leave shapes set up as they were for Matching.

CAN YOU TELL ME THE NAMES OF THE SHAPES?
WHAT IS THIS? (pointing to square in the child's set)
AND THIS? (pointing to triangle in the child's set)
THIS? (pointing to rectangle in the child's set)
WHAT IS THIS? (pointing to circle in the child's set)

Naming

Item No.		Correct Response	Incorrect Response	No Response
5.	Square			
6.	Triangle			
7.	Rectangle			
8.	Circle			

Tester's Scoring Grid

Kindergarten
Fall

Form K-01
Items 9-12

GEOMETRIC SHAPES - IDENTIFYING

TEST MATERIALS:

The child's set of geometric shapes as described in 001.

TEST DIRECTIONS:

Leave shapes set up as they were for Matching and Naming.

WOULD YOU GIVE ME THE TRIANGLE SHAPE?

WOULD YOU GIVE ME THE RECTANGLE SHAPE?

NOW, THE CIRCLE.

AND NOW THE SQUARE.

AND THE L-SHAPE.

Identifying

Item No.		Correct Response	Incorrect Response	No Response
9.	Triangle			
10.	Rectangle			
11.	Circle			
12.	Square			

Tester's Scoring Grid

COUNTING BUTTONS

TEST MATERIALS:

50	buttons - 1/2 inch diameter, white, plastic
4	boxes with lids - approximately 3 1/2" × 3 1/2" × 1 1/2", lightweight cardboard (The lids of the boxes were also used as boxes in the testing.)
1	small pad of scratch paper
1	crayon

TEST DIRECTIONS:

LET'S PUT SOME BUTTONS IN THESE BOXES.

Place a heap of buttons in front of the child and give him a box.

WILL YOU PUT TWO BUTTONS IN THE BOX? I WILL MARK A "2" ON THIS PAPER.

Mark "2" on the paper, show child, and place it standing in box with buttons.

NOW WE WILL KNOW HOW MANY BUTTONS ARE IN IT.

Push the box to your right.
Place another box in front of the child and say:

WOULD YOU PUT THREE BUTTONS IN THIS BOX? (Wait while the child counts out buttons.) WOULD YOU LIKE TO MAKE A "3" ON THIS PAPER?

Give the child the crayon and paper if he is willing to try. If not, write it yourself. Fill in scoring sheet for both the counting and writing of numerals* parts of this test.

---

*See 005 for the tester's scoring grid for writing numerals.

COUNTING BUTTONS (continued)

Continue in the order listed on the scoring sheets.

Stop after child has made three consecutive errors* in counting.

Counting Buttons

Item No.	Number Asked	Correct	Incorrect
13.	3		
14.	5		
15.	4		
16.	6		
17.	8		
18.	7		
19.	9		

Tester's Scoring Grid

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*In the tester training session, the test administrators were instructed to discontinue testing after a total of three errors rather than after three consecutive errors.

WRITING NUMERALS

TEST MATERIALS:

The test materials for this scale are listed with the test materials for scale 004.

TEST DIRECTIONS:

The directions for this scale are part of the test directions for scale 004.

Writing Numerals

Item No.		Formed Correctly	Attempted, Incorrect	No Attempt
20.	3			
21.	5			
22.	4			
23.	6			
24.	8			
25.	7			
26.	9			

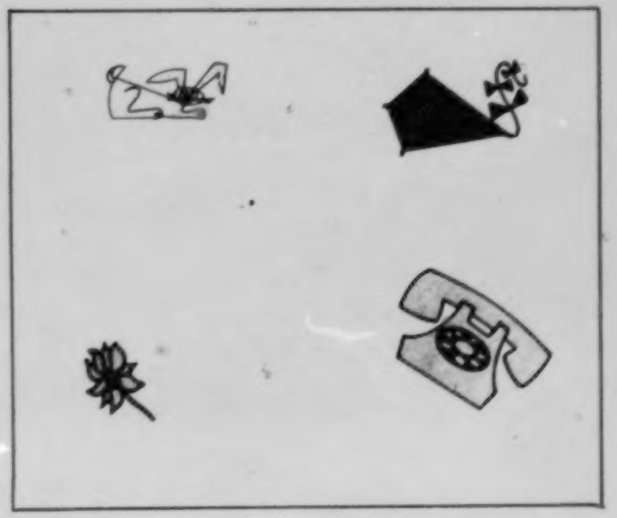
Tester's Scoring Grid

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS

TEST MATERIALS:

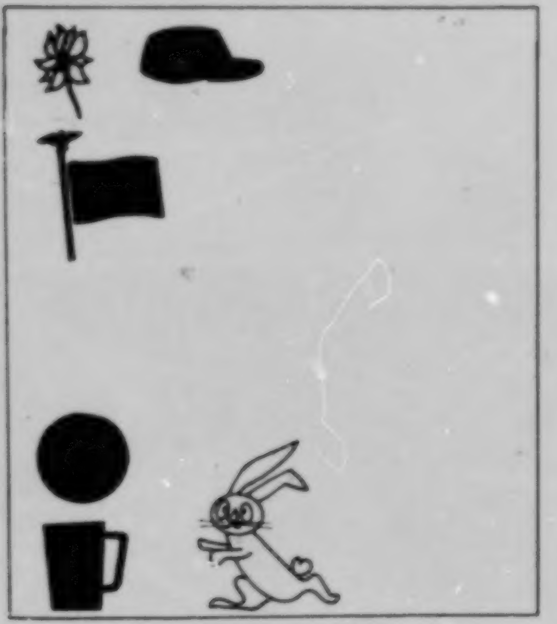
8 6" × 7" cards with varying numbers of drawings of familiar objects on each card. On the back of each card at the top is printed "Counting Members of a Given Set - Top of Card . . ." (the cards are numbered 1 through 8 to indicate the order in which they are to be presented to the child), and a digit in the lower left corner indicates the number of objects pictured on the front of the card.

The cards are reproduced below.

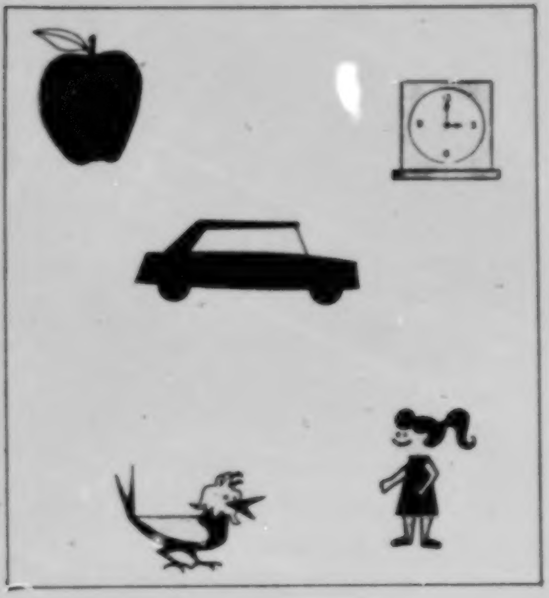


Card 1

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

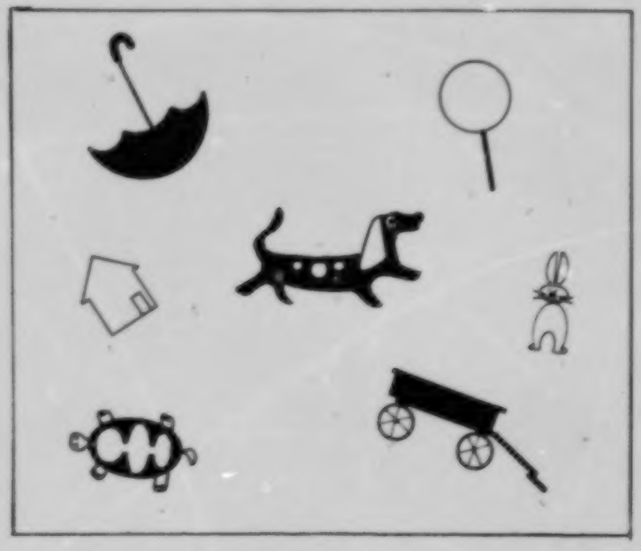


Card 2

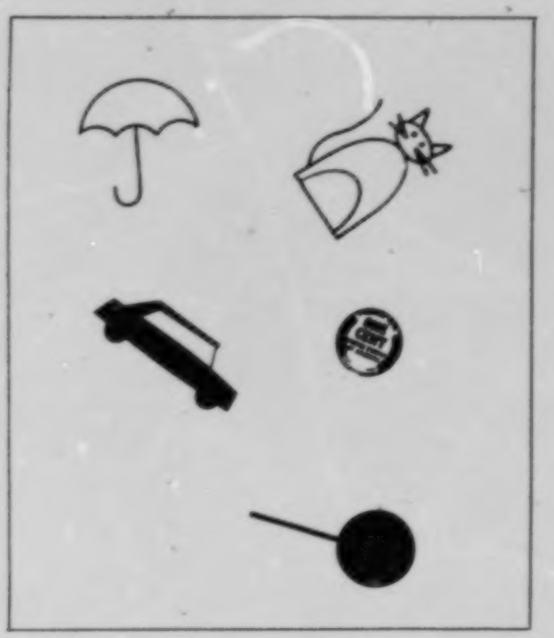


Card 3

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

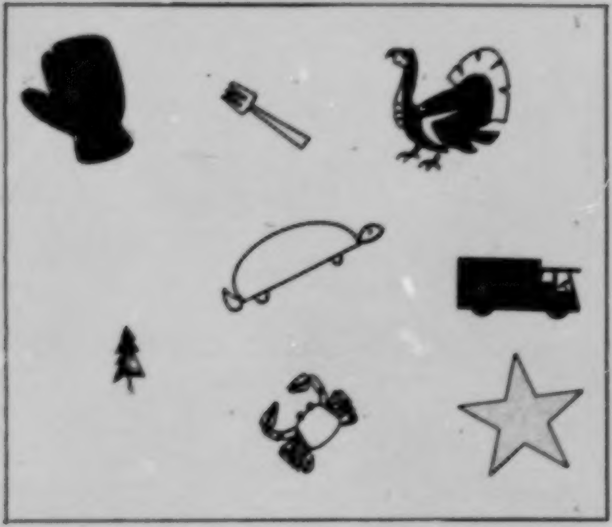


Card 4

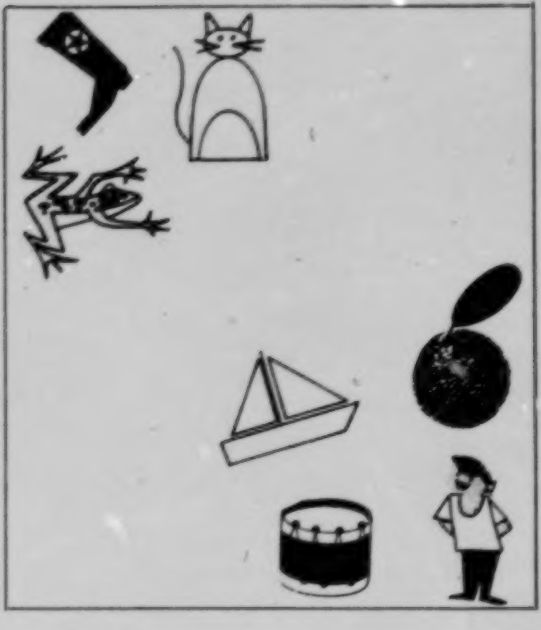


Card 5

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

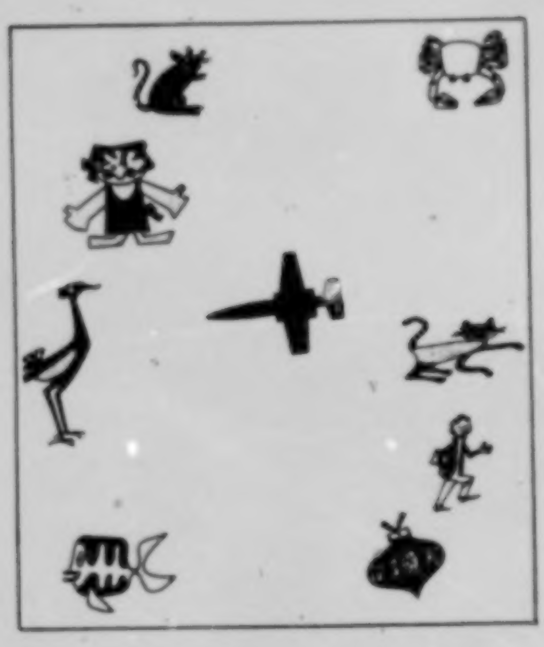


Card 6



Card 7

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)



Card 8

TEST DIRECTIONS:

Place Card 1 in front of the child and say:

HOW MANY MEMBERS ARE THERE IN THIS SET?

If no response, say:

HOW MANY DRAWINGS ARE ON THIS CARD?

Continue in the order and with the position of the card as marked on the back for each card, using the same directions as for Card 1.

Stop after the child has made three consecutive errors* in counting.

---

*In the tester training session, the test administrators were instructed to discontinue testing after a total of three errors rather than after three consecutive errors.

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

Counting Members of a Given Set: Picture Cards

Item No.	Card No.	Counted Correctly	Attempted, Incorrect	No Attempt
27.	1			
28.	2			
29.	3			
30.	4			
31.	5			
32.	6			
33.	7			
34.	8			

Tester's Scoring Grid

IDENTIFICATION OF NUMERALS

TEST MATERIALS:

10 No. 10 white envelopes with varying numbers of counting discs sealed inside. Each envelope has a numeral (0 through 9) written on the front which corresponds to the number of discs. Counting discs rather than buttons were used in the envelopes since buttons were found to tear holes in the envelopes.

TEST DIRECTIONS:

I HAVE SOME ENVELOPES HERE.

Show envelope so that child can see numeral.

THEY HAVE SOME BUTTONS IN THEM. THIS (point to the numeral on the envelope) TELLS US HOW MANY BUTTONS ARE INSIDE. THIS ONE HAS A "2" ON IT. IT HAS TWO BUTTONS IN IT.

Randomly spread the envelopes (marked 0 - 5 , including 2) in front of the child with numerals facing the child and all of them visible to him.

GIVE ME THE ENVELOPE THAT HAS 3 BUTTONS INSIDE.

Continue, asking for the envelope that has 1 button, and then the envelope that has 4 buttons.

If the child has failed on these three tasks (3, 1, 4), stop this task.*

If the child has been successful on these three trials, then randomly place the remaining envelopes on the table. Do not replace on the table the envelopes that the child has already handed you. Say:

GIVE ME THE ONE WITH 5 BUTTONS INSIDE.

---

*In the tester training session, the test administrators were instructed to discontinue testing after a total of three errors on the entire test.

IDENTIFICATION OF NUMERALS (continued)

Continue in the order marked on the scoring sheet through the remaining numerals.

Identification of Numerals

Item No.	Numeral	Identified Correctly	Attempted, Incorrect	No Attempt
35.	3			
36.	1			
37.	4			
38.	5			
39.	0			
40.	8			
41.	7			
42.	9			

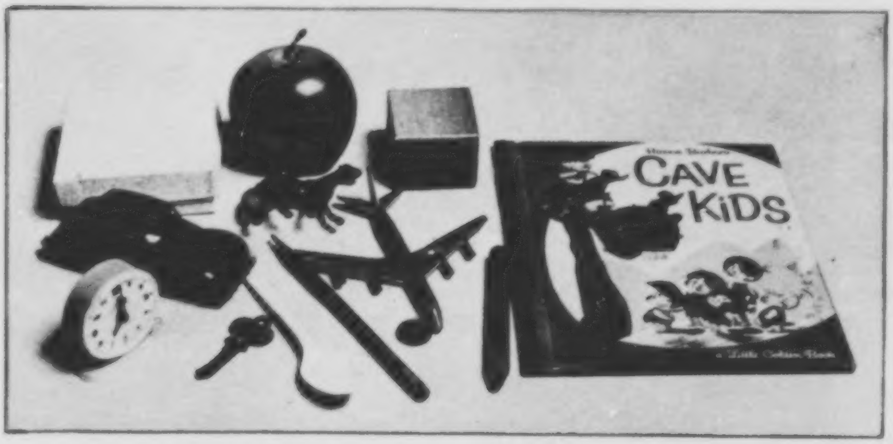
Tester's Scoring Grid

VISUAL MEMORY - OBJECTS

TEST MATERIALS:

13 familiar objects - toy car, toy horse, wooden block, pencil, plastic spoon, toy airplane, crayon, key, book, plastic apple, toy clock, small cardboard box, plastic button

A photograph of the objects actually used appears below.



TEST DIRECTIONS:

NOW, WE WILL TRY A DIFFERENT GAME. I AM GOING TO PUT SOME THINGS ON THE TABLE. WATCH CAREFULLY.

Place the objects in a line, from your left to right, on the table as listed. First trial use Group 1; second trial Group 2, and so on.

LOOK AT THEM VERY CAREFULLY.

Make sure the child attends to the objects.

I AM GOING TO TAKE ONE OF THESE AWAY (point to each object separately) WHILE YOU HAVE YOUR EYES CLOSED.

VISUAL MEMORY - OBJECTS (continued)

NOW CLOSE YOUR EYES TIGHTLY AND KEEP THEM CLOSED UNTIL I TELL YOU TO OPEN THEM.

Remove the underlined object from the table and place it in the box under the table. Close objects up so that spacing is even.

OPEN YOUR EYES. WHAT DID I TAKE AWAY?

If the child is correct, mark under First Recall on score sheet and proceed with the next group. If no reply, or incorrect, then say:

WHAT ELSE WAS THERE BEFORE YOU CLOSED YOUR EYES THAT ISN'T THERE NOW?

Pause. If correct, mark under Second Recall on score sheet and proceed with the next group. If no reply, then say:

DO YOU REMEMBER WHAT I TOOK AWAY?

If the child is correct this time, mark under Third Recall and proceed with the next group. If the child cannot recall, then proceed as follows:

I'LL PUT SOME OTHER THINGS ON THE TABLE.

Move objects already on the table to the side, and put the new set on the table in a line as listed. The object that had been removed is underlined on the score sheet.

WHICH ONE OF THESE WAS ON THE TABLE BEFORE YOU CLOSED YOUR EYES?

If the child cannot recognize the object included in the new set, tell and show him which object it was. Tell the child:

LET'S TRY ONE OTHER GAME LIKE THIS.

Continue through all five groups with above directions.

VISUAL MEMORY - OBJECTS (continued)

Visual Memory: Objects

Item No.	Original Set	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect
43.	Car Horse Block Spoon				Button Clock Horse Spoon		
44.	Spoon Airplane Crayon Key				Key Car Box Pencil		
45.	Book Apple Clock Box				Crayon Block Button Clock		
46.	Car Book Airplane Block				Apple Key Car Horse		
47.	Pencil Key Crayon Button				Clock Block Book Crayon		

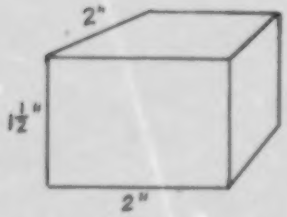
Tester's Scoring Grid

The score for this scale is the number of items answered correctly on the first recall. A weighted score had also been constructed by assigning the following numbers: 5 - correct on first recall, 4 - correct on second recall, 3 - correct on third recall, 1 - correct on new set. This weighted score provided no more information than did the unweighted score and is, therefore, not reported. In addition, the weighted score may have been inaccurate for some children. Comments by testers in a subsequent testing session (K-02) indicated that some testers may have given the recall trials if the child gave no response, but not if he gave an incorrect response.

VOCABULARY (INDIVIDUAL)

TEST MATERIALS:

12 wooden blocks



2 sheets of 11" × 14" white construction paper

TEST DIRECTIONS:

Keep blocks in box on the floor to tester's left. If blocks are needed on the table, keep them piled to your right.

Build all sets which you must construct to your right. When not in use, remove blocks from the table. Continue through all 20 items of the Vocabulary assessment whether or not there are three consecutive errors.*

Vocabulary	Materials	Directions
Behind	1 block	Hand child 1 block. CAN YOU PUT THIS BLOCK BEHIND YOU? If child does not respond, say: CAN YOU PUT THIS BLOCK BEHIND YOUR BACK SO THAT I CAN'T SEE IT?
Above	1 block	NOW HOLD THE BLOCK ABOVE YOU. If child does not respond, say:

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*This comment refers to instructions given in the tester training session that, in order to avoid the child experiencing too much failure, certain tests were to be discontinued after the child had made three errors.

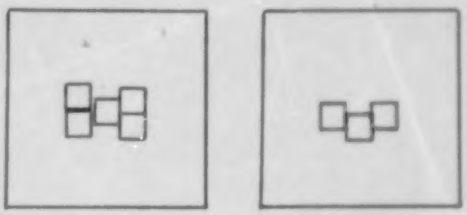
VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		CAN YOU HOLD THAT BLOCK ABOVE YOUR HEAD?
Bottom	12 blocks Sheet of construction paper	Hand child 4 blocks. WILL YOU BUILD A TOWER ON THE PAPER WITH THESE BLOCKS? If the child does not start, say: STACK THEM UP LIKE THIS. (And start stacking blocks. Stack 2 and tell child:) YOU GO AHEAD AND PUT THE BLOCKS ON THE TOWER. If the child has difficulty, don't push him; help him build the tower. When the tower is built, say: CAN YOU TOUCH THE BOTTOM BLOCK IN THE TOWER? Leave tower standing, and say: NOW I AM GOING TO BUILD 2 MORE TOWERS. Build 2 more 4-block towers in a row on the paper next to the child's tower with a 3-inch separation between each 2.
Between		WHICH IS THE TOWER BETWEEN THE OTHERS?
Each		CAN YOU TOUCH EACH TOWER?

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
Tallest	11 blocks	Change the three towers so the tower to your left contains 2 blocks, the middle tower 5 blocks and the right tower has 4 blocks. NOW, WHICH IS THE TALLEST TOWER?
Remove		ALL RIGHT, NOW I WANT YOU TO REMOVE THE BLOCKS FROM THE PAPER.
Set	Sheet of construction paper	Put all blocks in a heap at the side of the table to your right. Have your pen or pencil and papers on the table. Place the sheet of construction paper in front of the child. NOW, I WANT YOU TO MAKE A SET HERE ON THE PAPER. Point to construction paper. Any collection of objects - blocks, pencils, etc., placed on the paper is acceptable. If the child does not respond, say: PUT A SET OF THESE OBJECTS (pointing to objects) ON THIS PAPER (pointing to sheet of paper).
More than	2 sheets of construction paper 12 blocks	Place 2 pieces of construction paper, with 3 inches between the 2 sheets, in front of the child. HERE ARE 2 SHEETS OF PAPER. I AM GOING TO PUT SOME BLOCKS ON THIS SHEET OF PAPER. Place 3 blocks on sheet to your right. YOU PUT MORE BLOCKS ON YOUR PAPER (pointing to empty sheet) THAN I

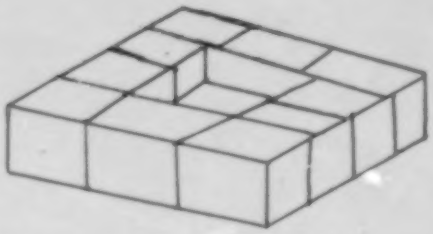
VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		PUT ON THIS (pointing to your sheet). If the child cannot do this task, place 5 blocks on the empty paper and say: NOW, WHICH PAPER HAS MORE BLOCKS ON IT THAN ON THE OTHER PAPER?  If child does not respond, say: WHICH OF THESE PAPERS (pointing to the 2 sheets) HAS MORE BLOCKS ON IT?
As many as	2 sheets of construction paper 12 blocks	Leave the 2 pieces of paper in front of the child. Have blocks heaped at the side of the table. Place 4 blocks on the paper to your right. I AM PUTTING SOME BLOCKS ON THIS PAPER. YOU PUT AS MANY BLOCKS ON THIS PAPER (pointing to empty sheet) AS I HAVE PUT ON THIS PAPER (pointing to the sheet with blocks on it).
Fewer than	2 sheets of construction paper 12 blocks	Leave the 2 sheets of paper in front of the child. Have all the the blocks heaped at the side of the table. Place 5 blocks on the paper to your right.

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		I HAVE A SET OF BLOCKS ON THIS PAPER (pointing to the paper with blocks). YOU PUT A SET WITH FEWER BLOCKS THAN THIS (again pointing to paper with blocks) HERE (pointing to empty sheet). If the child does not respond, say: PUT FEWER BLOCKS ON THIS PAPER THAN I HAVE PUT ON THIS PAPER. If the child still cannot do the task, score as "not attempted" and place 3 blocks on the empty sheet.
Join		NOW, JOIN THESE TWO SETS OF BLOCKS. If the child does not respond, say: CAN YOU JOIN THIS SET OF BLOCKS (pointing to blocks on paper to your left) TO THIS SET OF BLOCKS (pointing to blocks on paper to your right)?
Below	1 block	Hand the child 1 block. CAN YOU HOLD THAT BLOCK BELOW YOUR CHIN? If the child does not respond, say: CAN YOU POINT TO YOUR CHIN? If the child cannot correctly point to his chin, hold your hand, palm

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		down, over the table at the height of the child's chin, and say: CAN YOU HOLD THE BLOCK BELOW MY HAND?
Left	1 block	Place 1 block on the table in front of the child. CAN YOU HOLD THE BLOCK IN YOUR LEFT HAND?
Outside	12 blocks	Make a rectangular-shaped construction, using 10 blocks, in front of the child.  I AM BUILDING A WALL. CAN YOU PUT THIS BLOCK OUTSIDE THE WALL? (Hand the child 1 block.)
Inside		NOW, PUT THAT BLOCK INSIDE THE WALL.
On		PUT THE BLOCK ON THE WALL.

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
Right	1 block	Place one block on the table in front of the child. CAN YOU HOLD THE BLOCK IN YOUR RIGHT HAND?
Shorter than	12 blocks	Have the child build a tower with 4 blocks. You build two more towers to the right of the child's tower, using 5 blocks for the middle tower, and 3 blocks for the right-hand tower. WHICH TOWER IS SHORTER THAN THE OTHERS?
Top		Remove the three-block and the four-block towers, leaving only the five-block tower standing. TOUCH THE TOP BLOCK IN THE TOWER.

Vocabulary

Item No.	Vocabulary Word	Correct	Incorrect
48.	Behind		
49.	Above		
50.	Bottom		
51.	Between		
52.	Each		
53.	Tallest		

(continued)

VOCABULARY (INDIVIDUAL) (continued)

Item No.	Vocabulary Word	Correct	Incorrect
54.	Remove		
55.	Set		
56.	More than		
57.	As many as		
58.	Fewer than		
59.	Join		
60.	Below		
61.	Left		
62.	Outside		
63.	Inside		
64.	On		
65.	Right		
66.	Shorter than		
67.	Top		

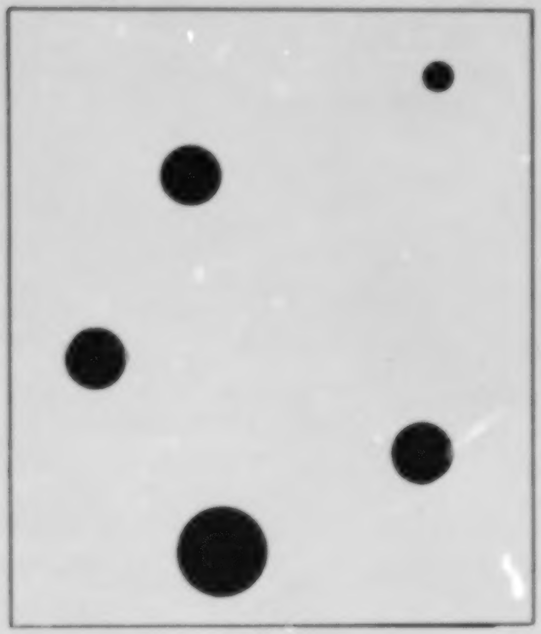
Tester's Scoring Grid

EQUIVALENT SETS - DOTS

TEST MATERIALS:

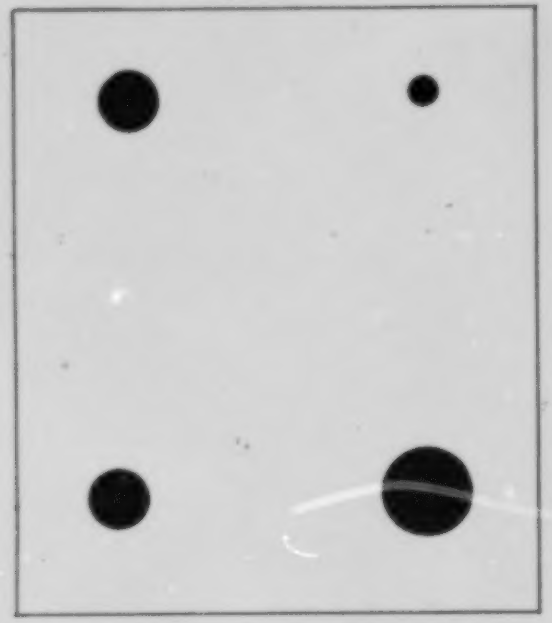
20	buttons - 1/2 inch diameter, white, plastic
1	sheet of 11" × 14" white construction paper
6	6" × 7" cards with varying numbers of dots of varying sizes on each card. On the back of each card at the top is printed "Equivalent Sets - Top of Card . . ." (The cards are numbered 1 through 6 to indicate the order in which they are to be presented to the child.)

The cards are reproduced below.

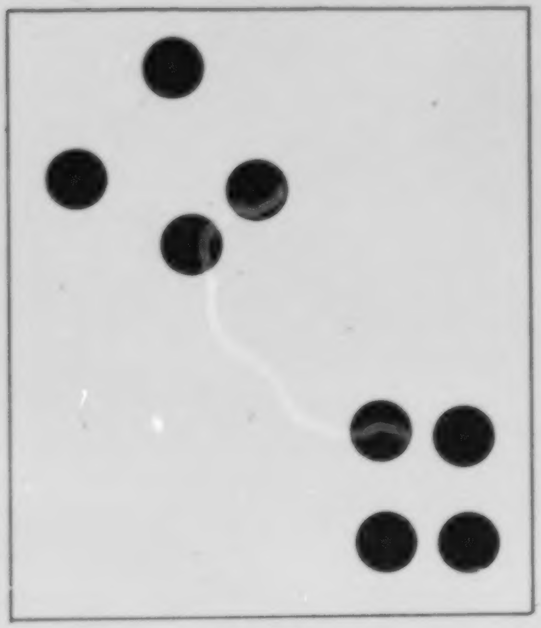


Card 1

EQUIVALENT SETS - DOTS (continued)

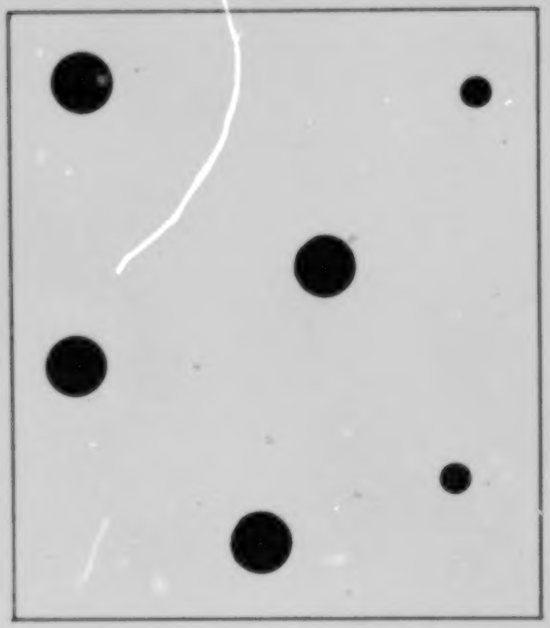


Card 2

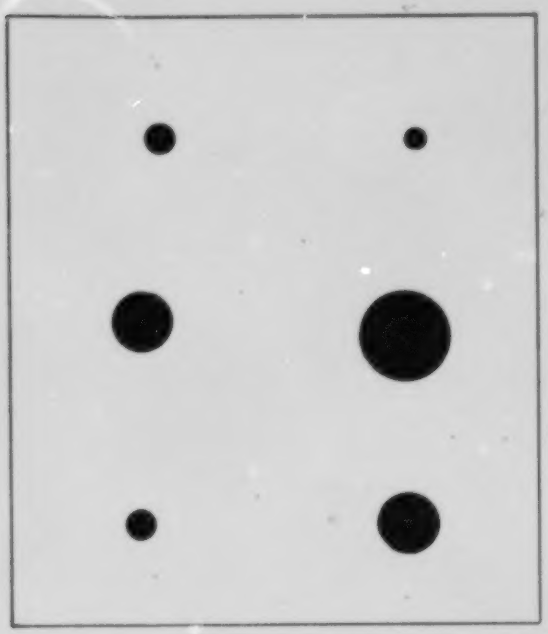


Card 3

EQUIVALENT SETS - DOTS (continued)

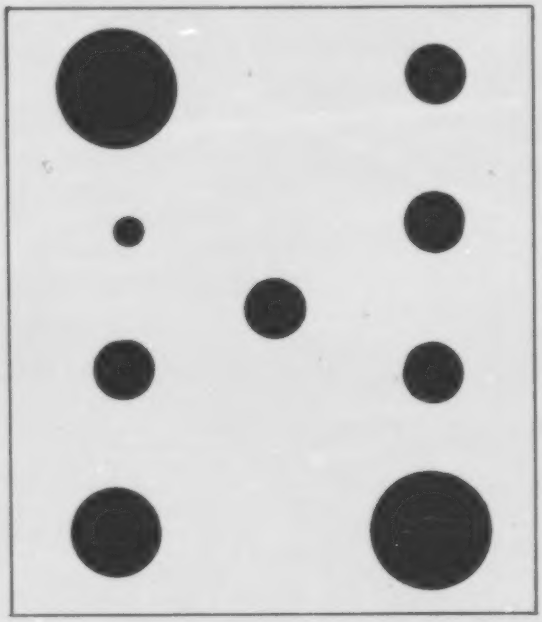


Card 4



Card 5

EQUIVALENT SETS - DOTS (continued)



Card 6

TEST DIRECTIONS:

Heap the buttons to the child's left. Place the sheet of construction paper in front of him.

I AM GOING TO SHOW YOU SOME CARDS WITH DOTS ON THEM.

Show the child Card 1. Place it above his sheet of paper and say:

ON THIS SHEET (point to his construction paper) MAKE A SET, WITH THE BUTTONS, WHICH IS EQUIVALENT TO THIS SET (pointing to the card).

If the child does not respond, say:

MAKE A SET WITH YOUR BUTTONS ON THIS SHEET (point to construction paper) THAT HAS THE SAME NUMBER OF MEMBERS AS MY SET HAS (point to your number card).

EQUIVALENT SETS - DOTS (continued)

Pause after the child finishes, and remove the buttons from his paper to the side of the table each time. Continue with the cards in the order and position as marked on the back of each card, using the same directions as for Card 1.

Have on the table only the card for which the child is constructing an equivalent set. Keep all other cards off of the table.

Stop after the child has made three consecutive errors* in constructing sets.

In scoring this test, make certain you check two columns for each card: either correct or incorrect, and how the child formed the set. If the number of buttons is the same as the number of dots on the card, the scoring is "correct" regardless of whether the pattern has been copied or not.

Equivalent Sets: Dots

Item No.	Card No.	Correct	Incorrect
68.	1		
70.	2		
72.	3		
74.	4		
76.	5		
78.	6		

Equivalent set formed by:

	Copying Pattern	Counting	Other (explain)
69.			
71.			
73.			
75.			
77.			
79.			

Tester's Scoring Grid

Scale 012 includes only the "Correct" and "Incorrect" columns. No scale was formed for the "Copying Pattern" or "Counting" columns since the testers had difficulty ascertaining the strategy employed by the children and, therefore, were unable to check these columns in most instances.

---

*In the tester training session, the test administrators were instructed to discontinue testing after a total of three errors rather than after three consecutive errors.

ORDINAL NUMBER

TEST MATERIALS:

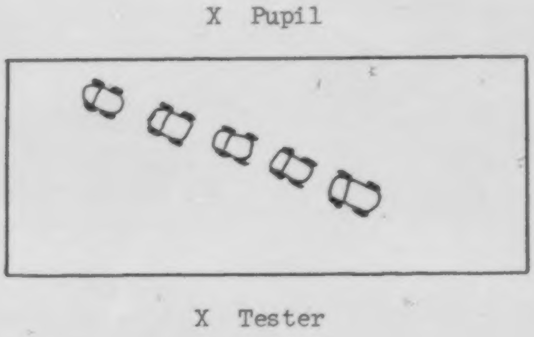
5 toy trucks - plastic, with load beds large enough to hold five marbles

25 marbles

TEST DIRECTIONS:

HERE ARE SOME TRUCKS AND SOME MARBLES. I AM GOING TO LINE UP THE TRUCKS LIKE THIS.

Line up the five trucks with cabs of trucks at an angle facing toward the pupil's right.



Hand the child a marble. Say:

WOULD YOU PUT THIS MARBLE IN THE FIRST TRUCK?

ORDINAL NUMBER (continued)

WOULD YOU PUT THIS MARBLE IN THE THIRD TRUCK?

Then say:

WOULD YOU PUT THIS MARBLE IN THE FIFTH TRUCK?
FOURTH ?
FIRST ?
LAST ?
SECOND ?
FOURTH ?

Mark as correct from whichever end the child chooses as first. Use his reference to judge correctness of his following responses.

Continue through this assessment whether or not there are three consecutive errors.*

Ordinal Number

Item No.	Ordinal Number	Correct	Incorrect
80.	First		
81.	Third		
82.	Fifth		
83.	Fourth		
84.	First		
85.	Last		
86.	Second		
87.	Fourth		

Tester's Scoring Grid

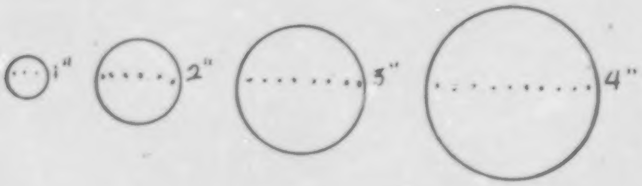
---

*This comment refers to instructions given in the tester training session that, in order to avoid the child experiencing too much failure, certain tests were to be discontinued after the child had made three errors.

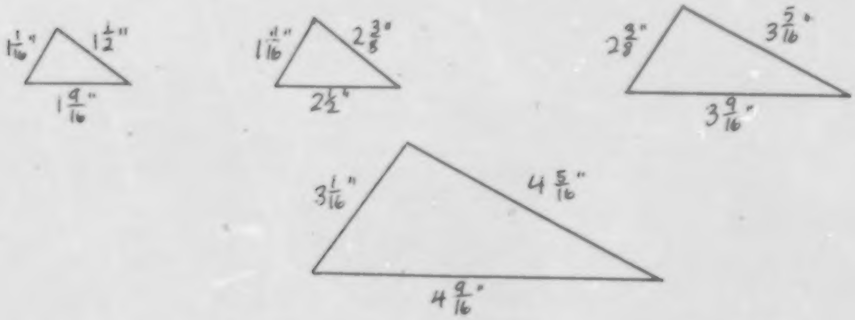
ORDERING GEOMETRIC SHAPES

TEST MATERIALS:

4 blue circles cut from light-weight cardboard



4 red triangles cut from light-weight cardboard



TEST DIRECTIONS:

Although only a small part of the following test directions pertain to the Ordering: Geometric Shapes scale, the complete test is printed here to give the pertinent sections perspective. The specific directions for Ordering: Geometric Shapes are marked with brackets.

Set I. Circles

Spread out the geometric shapes of Set I randomly in front of the child so that all are visible.

HERE ARE SOME SHAPES OR REGIONS. FIND ALL THE CIRCLE SHAPES. PUT THEM HERE (pointing to the table at the child's right).

ORDERING - GEOMETRIC SHAPES (continued)

Count the number the child finds and record under the number Sorted. If the child does not respond, say:

SHOW ME A CIRCULAR SHAPED REGION. (Pause) NOW PUT ALL THE SHAPES THAT ARE CIRCLES OVER HERE (pointing to child's right).

If the child cannot identify a circle, record as 0 under Sorted.

If the child has included any shapes other than the circular regions, note number and shape in Comments on the score sheet.

Remove all the shapes except the four blue, circular regions from the table, and say:

CAN YOU PUT THESE (pointing to circles) IN A LINE SO THAT THEY GO FROM THE LARGEST TO THE SMALLEST?

Record in correct box under How Ordered.

GIVE ME THE SMALLEST CIRCLE.

Continue through all four sets of Ordering and Classifying independent of the number of errors the child makes.

Set III. Triangles and Red

Spread out the geometric shapes of Set III randomly in front of the child so that all are visible.

HERE ARE SOME OTHER SHAPES. SHOW ME THE SHAPES THAT ARE BOTH TRIANGLES AND RED.

If the child does not respond, say:

SHOW ME A TRIANGULAR REGION. (Pause) NOW PUT ALL THE SHAPES THAT ARE TRIANGLES AND RED OVER HERE (pointing to the table at the child's right).

Count the number of red triangular shapes the child finds and record under Sorted. If the child cannot identify a triangle, record as 0.

ORDERING - GEOMETRIC SHAPES (continued)

Be certain to write down in Comments if other shapes were included in the sorting. Note the shape and color of non-triangular shapes included in the set. Note if other colored triangular shapes were included.

Add any red triangular shapes that he has overlooked. Remove all shapes except the red triangular shapes from the table, and say:

CAN YOU PUT THESE IN A LINE SO THAT THEY GO FROM THE SMALLEST TO THE LARGEST?

Record in correct box under How Ordered.

Set V. Same Size

Spread out the geometric shapes randomly in front of the child so that all are visible.

A. FIND THE SHAPES THAT ARE THE SAME SIZE. PUT THEM OVER HERE (pointing to the child's right).

If no response, say:

B. CAN YOU FIND SETS OF SHAPES WHICH HAVE MEMBERS ALL THE SAME SIZE?

If the child sorts both the squares and circles, score appropriately under Sorted.

If the task is done correctly, there should be scores of 4 for Square and Circle; 0 for Rectangle and Triangle.

If the child sorts only the squares or circles, then say:

IS THERE ANOTHER SET OF SHAPES WHICH HAS MEMBERS ALL THE SAME SIZE?

Score under Sorted After Prompting.

Be sure to check in appropriate space if no prompting is necessary after the initial directions (A. and B.).

ORDERING - GEOMETRIC SHAPES (continued)

Set VII.

Spread out the shapes of Set VII randomly in front of the child so that all are visible.

A. HERE ARE SOME OTHER SHAPES OR REGIONS.

THERE ARE FOUR DIFFERENT SHAPES IN THE SET. (Point to one of each shape.) GIVE ME THE SMALLEST ONE OF EACH DIFFERENT SHAPE.

If the child does not respond, say:

MAKE A SEPARATE PILE FOR EACH SHAPE. (Point again to one of each shape.) THEN GIVE ME THE SMALLEST OF EACH SHAPE.

Be certain to note in Comments if it is necessary to tell the child to do this.

If an error was made, note in the Comments which smallest shape was omitted or if any larger ones were included.

Record under A. number sorted and error, if made.

Return all the shapes to the random positions within the set of shapes before beginning B.

B. CAN YOU GIVE ME THE SMALLEST RED CIRCLE?

If the child does not respond, say:

MAKE A SEPARATE PILE FOR ALL THE RED CIRCLES. THEN GIVE ME THE SMALLEST RED CIRCLE.

Be certain to note in Comments if it is necessary to tell the child to do this. After completing this part of Set VII, return the red circles to random positions within the set of shapes. Make certain that all shapes are visible.

C. GIVE ME THE LARGEST YELLOW RECTANGLE.

If the child does not respond, say:

ORDERING - GEOMETRIC SHAPES (continued)

MAKE A SEPARATE PILE FOR ALL THE YELLOW RECTANGLES.

THEN GIVE ME THE LARGEST YELLOW RECTANGLE.

Note in Comments if it is necessary to tell the child to do this. After completing this part of Set VII, return the yellow rectangles to random places within the set of shapes. Make sure all shapes are visible.

D. NOW, ARE THERE MORE TRIANGLES OR RED SQUARES?

If the child does not respond, say:

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE TRIANGLES OR RED SQUARES? (Pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

Return removed shapes to random places within the set of shapes, making sure that all shapes are visible, before starting E.

E. NOW, ARE THERE MORE CIRCLES OR BLUE RECTANGLES?

If the child does not respond, say:

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE CIRCLES OR BLUE RECTANGLES? (Pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

ORDERING - GEOMETRIC SHAPES (continued)

Ordering: Geometric Shapes

Item No.

89. How Ordered?
(Check the 1 appropriate box)

Largest to smallest ☐
Smallest to largest ☐
Randomly ordered ☐

92. How Ordered?
(Check the 1 appropriate box)

Smallest to largest ☐
Largest to smallest ☐
Randomly ordered ☐

Tester's Scoring Grid

Items 89 and 92 were scored correct if all four circles or triangles were ordered by size from smallest to largest or from largest to smallest. These items were scored as incorrect if the shapes were randomly ordered or if any one shape was not in the appropriate position relevant to the size of the other three circles (Item 89) or triangles (Item 92).

Kindergarten
Fall

Form K-01
Items 88,90,
91,93-98

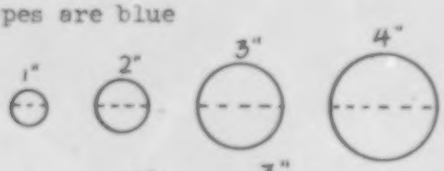
CLASSIFYING

TEST MATERIALS:

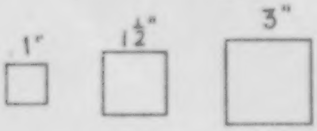
4 sets of geometric shapes cut from light-weight cardboard of various colors and packaged in four No. 10 envelopes marked "Ordering and Classifying - Set I" (or Set III, Set V, Set VII).

Set I - all shapes are blue

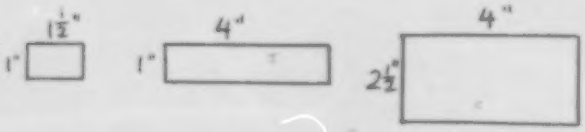
4 circles:



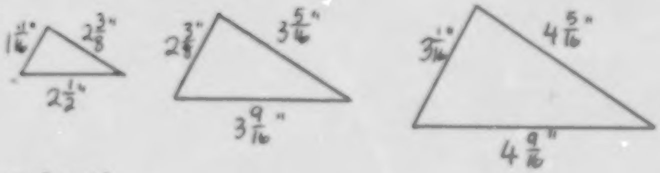
3 squares:



3 rectangles:

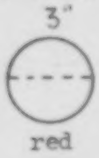


3 triangles:

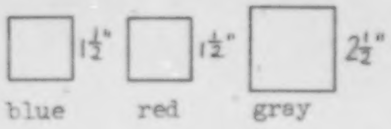

1 1/16"
2 3/8"
2 1/2"
2 3/8"
3 5/16"
3 9/16"
3 1/16"
4 5/16"
4 9/16"

Set III - multi-colored

1 circle:

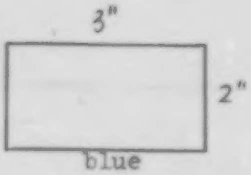


3 squares:


1½"
1½"
2½"
blue
red
gray

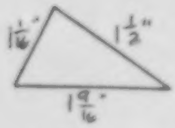
CLASSIFYING (continued)

1 rectangle:

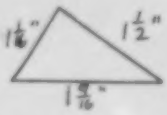


blue

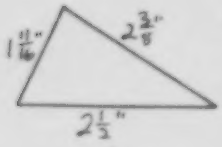
9 triangles:


1 1/16"
1 1/2"
1 9/16"

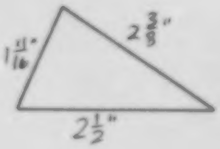
yellow


1 1/16"
1 1/2"
1 9/16"

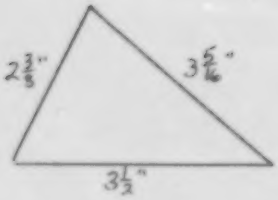
red


1 11/16"
2 3/8"
2 1/2"

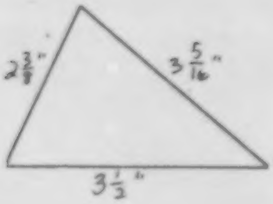
gray


1 11/16"
2 3/8"
2 1/2"

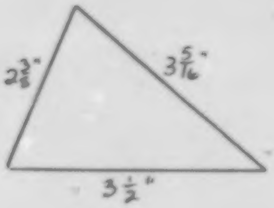
red


2 3/8"
3 5/16"
3 1/2"

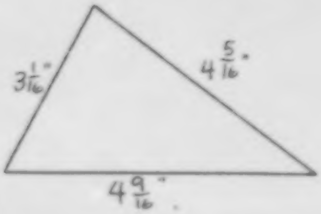
yellow


2 3/8"
3 5/16"
3 1/2"

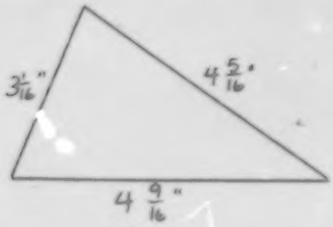
red


2 3/8"
3 5/16"
3 1/2"

gray

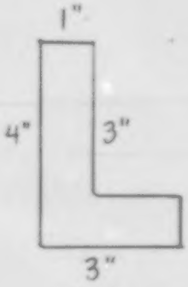

3 1/16"
4 5/16"
4 9/16"

red


3 1/16"
4 5/16"
4 9/16"

blue

1 L-shape:

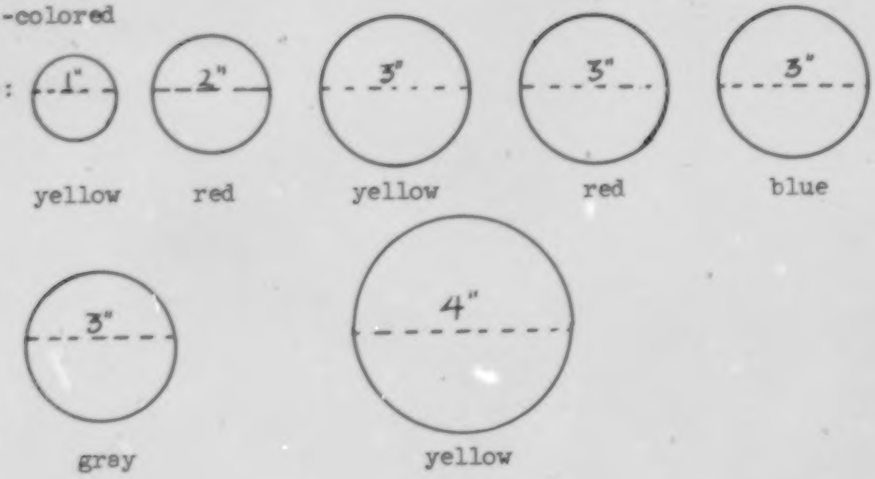


yellow

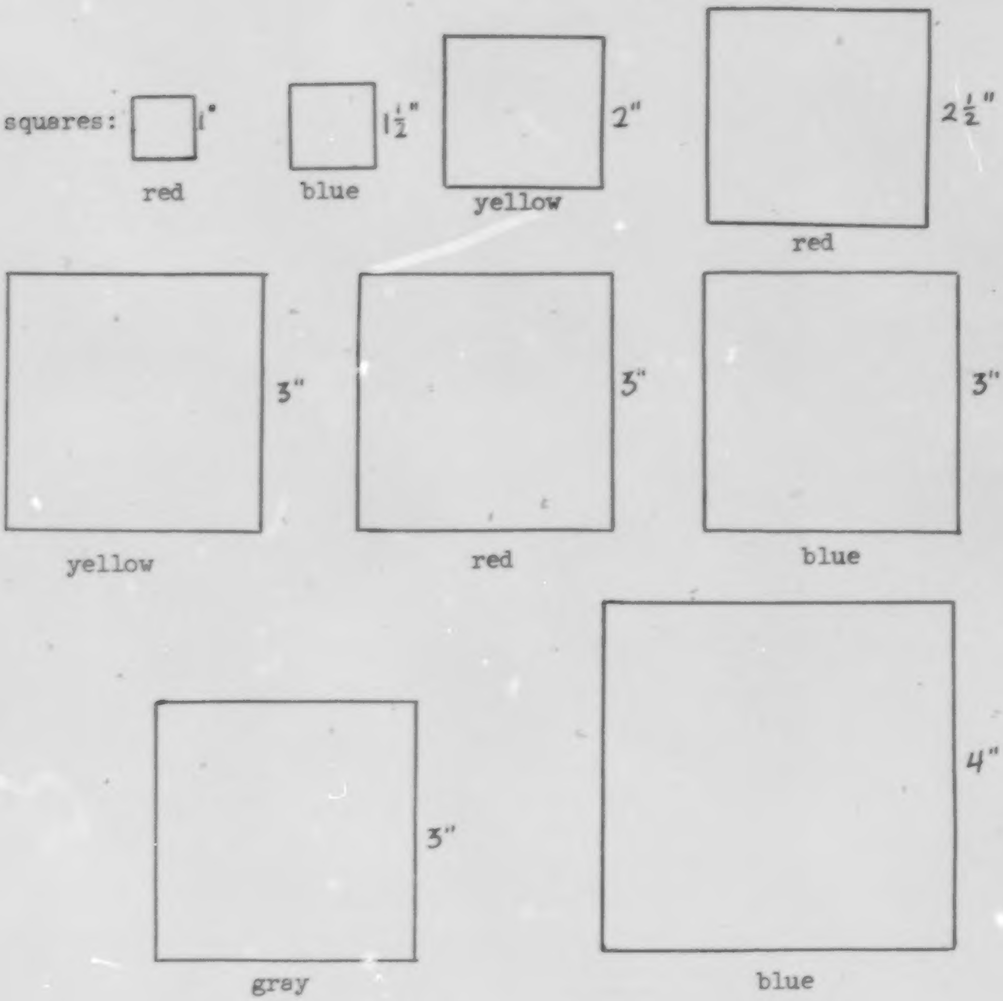
CLASSIFYING (continued)

Set V - multi-colored

7 circles:

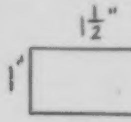

1"
yellow
2"
red
3"
yellow
3"
red
3"
blue
3"
gray
4"
yellow

9 squares:

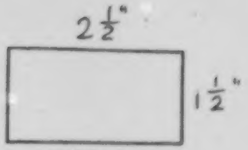

1"
red
1½"
blue
2"
yellow
2½"
red
3"
yellow
3"
red
3"
blue
3"
gray
4"
blue

CLASSIFYING (continued)

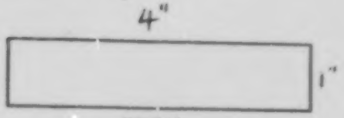
5 rectangles:



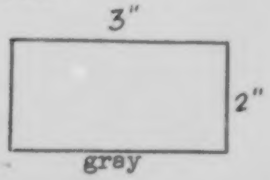
yellow



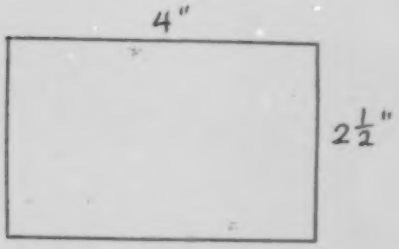
yellow



gray

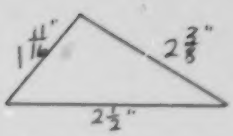


gray

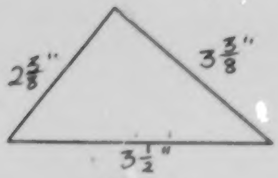


red

2 triangles:

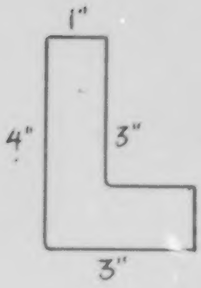


red



yellow

1 L-shape:

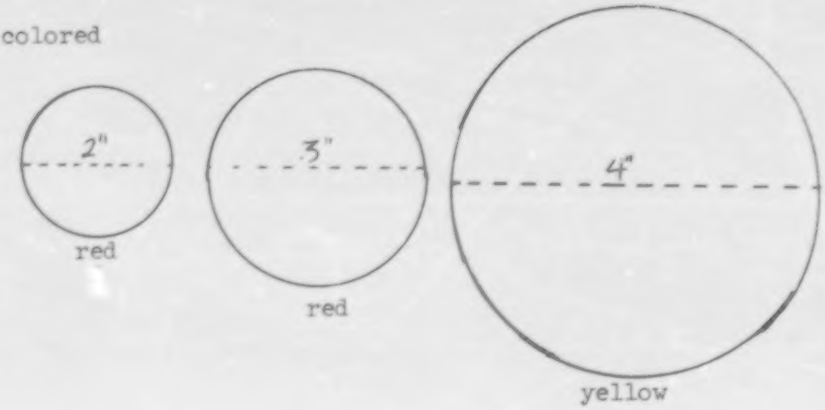


red

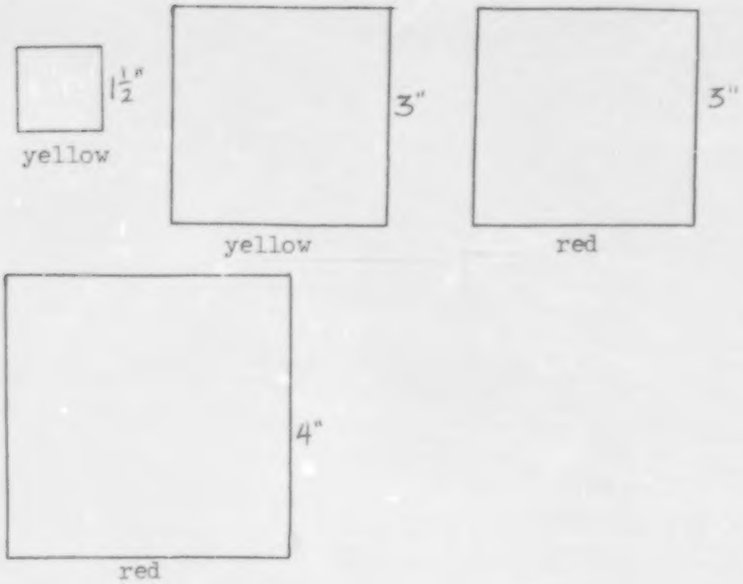
CLASSIFYING (continued)

Set VII - multi-colored

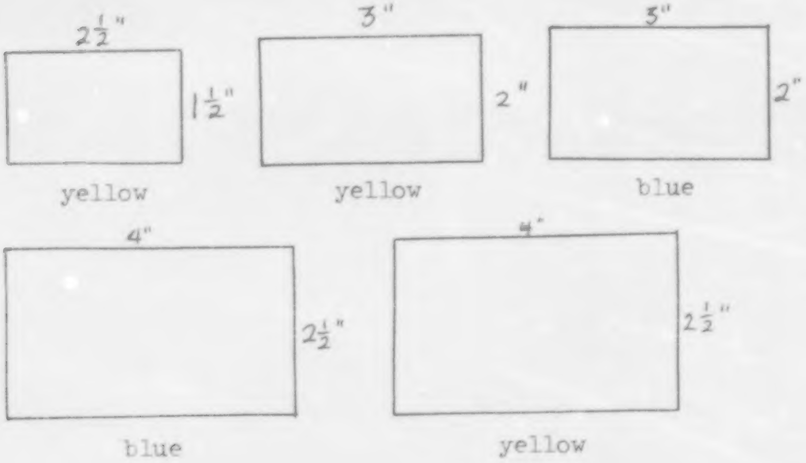
3 circles:


2"
red
3"
red
4"
yellow

4 squares:

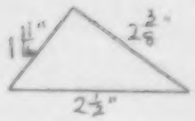

1½"
yellow
3"
yellow
3"
red
4"
red

5 rectangles:

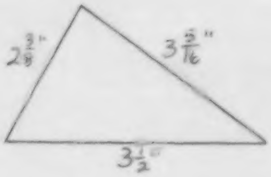

2½"
1½"
yellow
3"
2"
yellow
3"
2"
blue
4"
2½"
blue
4"
2½"
yellow

CLASSIFYING (continued)

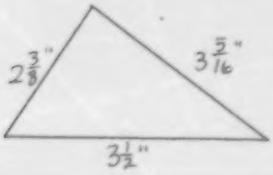
4 triangles:


$1\frac{11}{16}$"
$2\frac{3}{8}$"
$2\frac{1}{2}$"

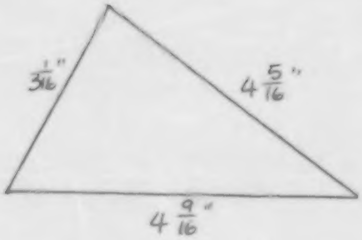
gray


$2\frac{3}{8}$"
$3\frac{5}{16}$"
$3\frac{1}{2}$"

red


$2\frac{3}{8}$"
$3\frac{5}{16}$"
$3\frac{1}{2}$"

gray


$3\frac{1}{16}$"
$4\frac{5}{16}$"
$4\frac{9}{16}$"

blue

TEST DIRECTIONS:

Although a small part of the following test directions do not pertain to the Classifying scale, the complete test is printed here to give the pertinent sections perspective. The directions which apply to Classifying are marked with brackets.

Set I. Circles

Spread out the geometric shapes of Set I randomly in front of the child so that all are visible.

HERE ARE SOME SHAPES OR REGIONS. FIND ALL THE CIRCLE SHAPES. PUT THEM HERE (pointing to the table at the child's right).

Count the number the child finds and record under the number Sorted.

If the child does not respond, say:

SHOW ME A CIRCULAR SHAPED REGION. (Pause) NOW PUT ALL THE SHAPES THAT ARE CIRCLES OVER HERE (pointing to child's right).

If the child cannot identify a circle, record as 0 under Sorted.

CLASSIFYING (continued)

If the child has included any shapes other than the circular regions, note number and shape in Comments on the score sheet.

Remove all the shapes except the four blue, circular regions from the table, and say:

CAN YOU PUT THESE (pointing to circles) IN A LINE SO THAT THEY GO FROM THE LARGEST TO THE SMALLEST?

Record in correct box under How Ordered.

GIVE ME THE SMALLEST CIRCLE.

Continue through all four sets of Ordering and Classifying independent of the number of errors the child makes.*

Set III. Triangles and Red

Spread out the geometric shapes of Set III randomly in front of the child so that all are visible.

HERE ARE SOME OTHER SHAPES. SHOW ME THE SHAPES THAT ARE BOTH TRIANGLES AND RED.

If the child does not respond, say:

SHOW ME A TRIANGULAR REGION. (Pause) NOW PUT ALL THE SHAPES THAT ARE TRIANGLES AND RED OVER HERE (pointing to the table at the child's right).

Count the number of red triangular shapes the child finds and record under Sorted. If the child cannot identify a triangle, record as 0.

---

*This comment refers to instructions given in the tester training session that, in order to avoid the child experiencing too much failure, certain tests were to be discontinued after the child had made three errors.

CLASSIFYING (continued)

Be certain to write down in Comments if other shapes were included in the sorting. Note the shape and color of non-triangular shapes included in the set. Note if other colored triangular shapes were included.*

Add any red triangular shapes that he has overlooked. Remove all shapes except the red traingular shapes from the table, and say:

CAN YOU PUT THESE IN A LINE SO THAT THEY GO FROM THE SMALLEST TO THE LARGEST?

Record in correct box under How Ordered.

Set V. Same Size

Spread out the geometric shapes randomly in front of the child so that all are visible.

A. FIND THE SHAPES THAT ARE THE SAME SIZE. PUT THEM OVER HERE (pointing to the child's right).

If no response, say:

B. CAN YOU FIND SETS OF SHAPES WHICH HAVE MEMBERS ALL THE SAME SIZE?

If the child sorts both the squares and circles, score appropriately under Sorted.

If the task is done correctly, there should be scores of 4 for Square and Circle; 0 for Rectangle and Triangle.

If the child sorts only the squares or circles, then say:

IS THERE ANOTHER SET OF SHAPES WHICH HAS MEMBERS ALL THE SAME SIZE?

---

*Nothing was done with these data because of great variation in the extent and clarity of tester comments. In general, no scales were formed to check on kinds of errors children made, even though these comments were requested in several parts of the test.

CLASSIFYING (continued)

Score under Sorted After Prompting.

Be sure to check in appropriate space if no prompting is necessary after the initial directions (A. and B.).

Set VII.

Spread out the shapes of Set VII randomly in front of the child so that all are visible.

A. HERE ARE SOME OTHER SHAPES OR REGIONS. THERE ARE FOUR DIFFERENT SHAPES IN THE SET. (Point to one of each shape.) GIVE ME THE SMALLEST ONE OF EACH DIFFERENT SHAPE.

If the child does not respond, say:

MAKE A SEPARATE PILE FOR EACH SHAPE. (Point again to one of each shape.) THEN GIVE ME THE SMALLEST OF EACH SHAPE.

Be certain to note in Comments if it is necessary to tell the child to do this.*

If an error was made, note in the Comments which smallest shape was omitted or if any larger ones were included.*

Record under A. number sorted and error, if made.

Return all the shapes to the random positions within the set of shapes before beginning B.

B. CAN YOU GIVE ME THE SMALLEST RED CIRCLE?

If the child does not respond, say:

MAKE A SEPARATE PILE FOR ALL THE RED CIRCLES. THEN GIVE ME THE SMALLEST RED CIRCLE.

Be certain to note in Comments if it is necessary to tell the child to do this.* After completing this

---

*Nothing was done with these data because of great variation in the extent and clarity of tester comments.

CLASSIFYING (continued)

part of Set VII, return the red circles to random positions within the set of shapes. Make certain that all shapes are visible.

C. GIVE ME THE LARGEST YELLOW RECTANGLE.

If the child does not respond, say:

MAKE A SEPARATE PILE FOR ALL THE YELLOW RECTANGLES.

THEN GIVE ME THE LARGEST YELLOW RECTANGLE.

Note in Comments if it is necessary to tell the child to do this.* After completing this part of Set VII, return the yellow rectangles to random places within the set of shapes. Make sure all shapes are visible.

D. NOW, ARE THERE MORE TRIANGLES OR RED SQUARES?

If the child does not respond, say:

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE TRIANGLES OR RED SQUARES? (Pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

Return removed shapes to random places within the set of shapes, making sure that all shapes are visible, before starting E.

E. NOW, ARE THERE MORE CIRCLES OR BLUE RECTANGLES?

If the child does not respond, say:

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE CIRCLES OR BLUE RECTANGLES? (Pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

---

*Nothing was done with these data because of great variation in the extent and clarity of tester comments.

CLASSIFYING (continued)

Item
No.

Set I Circles

88. Sorted
(Circle total number of circles sorted)

0 1 2 3 4

Did child include other shapes in addition to the circles sorted?

Yes ____ No ____

If yes, what? ________________

90. Handed smallest circle

Yes ____ No ____

Comments:

Tester's Scoring Grid

Item
No.

Set III Triangles and Red

91. Sorted
(Circle total number of triangles and red sorted)

0 1 2 3 4

Did child include other shapes in addition to the red triangles sorted?

Yes ____ No ____

If yes, what? ________________

Comments:

Tester's Scoring Grid

CLASSIFYING (continued)

Item
No.

Set V Same Size

93. Sorted shapes of same size without prompting: (Circle 1 numeral for each shape)

Square	0	1	2	3	4
Rectangle	0	1	2	3	4
Triangle	0	1	2	3	4
Circle	0	1	2	3	4

Sorted after prompting:

Square	0	1	2	3	4
Circle	0	1	2	3	4

If no prompting necessary after initial directions, check here _____

Comments:

Tester's Scoring Grid

CLASSIFYING (continued)

Item No.

Set VII

94. A. Smallest members
(circle total no. sorted) 0 1 2 3 4

Did child include other shapes in addition to the smallest members sorted?

Yes ____ No ____

If yes, what? ____________________

95. B. Handed smallest red circle Yes ___ No ___

If No, error was shape ___ size ___

color ___

96. C. Handed largest yellow rectangle

Yes ____ No ____

If No, error was shape ___ size ___

color ___

97. D. More triangles or red squares

correct (more triangles) ____

incorrect (more red squares) ____

98. E. More circles or blue rectangles

correct (more circles) ____

incorrect (more blue rects.) ____

Comments:

Tester's Scoring Grid

Three of the four sorting items (88, 91, 94) were scored correct if all four of the appropriate shapes were sorted and no incorrect shapes were included in the set. The items were scored incorrect if Yes was checked or comments of the tester showed other shapes

CLASSIFYING (continued)

were included. The fourth sorting item, Item 93, was scored correct if the child found at least three of the four squares and at least three of the four circles, and included none of the other shapes before prompting. The "Sorted After Prompting" section for Item 93 was not scored because it was not possible to determine in many cases whether the tester had prompted.

With the exception of the comments which were used as described in the paragraph above, comments were not used because the testers failed to provide sufficient information.

ROTE COUNTING

TEST MATERIALS:

none

TEST DIRECTIONS:

WILL YOU COUNT FOR ME?

Pause, if no response, say:

I'LL START AND THEN YOU GO ON. 1, 2.

Pause. If still no response, say:

ONE. WHAT COMES NEXT?

Stop the child when he reaches '100'.

Write down numbers exactly as the child says them. Enter numerals on score sheets across the rows (as in reading lines of print in a book). If he stops and starts from one, or from another number more than twice, stop the task (e.g., child counts through 19, then starts again and counts through 25; don't let him start again, but be sure the 1 through 19 and the 1 through 25 are written in on the scoring sheet).*

---

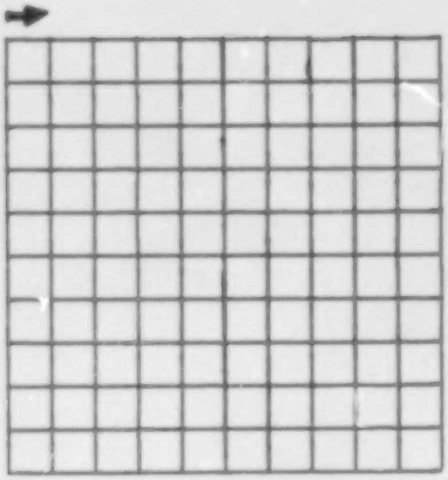
*A special scoring was attempted for children who counted with one error (the child either skipped one number and continued to count or looped back one number and continued to count). The results did not provide enough information to justify use in computing the scale score.

ROTE COUNTING (continued)

Rote Counting

Item
No.

99.



Tester's Scoring Grid

The score used for Rote Counting shows how far the child counted without skipping, repeating or reversing numbers and without looping back to a previous number and recounting. The responses were scored in intervals of 10 :

Numbers Counted Correctly	Score
0 - 9	0
10 - 19	1
20 - 29	2
30 - 39	3
40 - 49	4
50 - 59	5
60 - 69	6
70 or above	7

Kindergarten
Fall

Form K-01
Items 101-104

VISUAL MEMORY - PICTURES

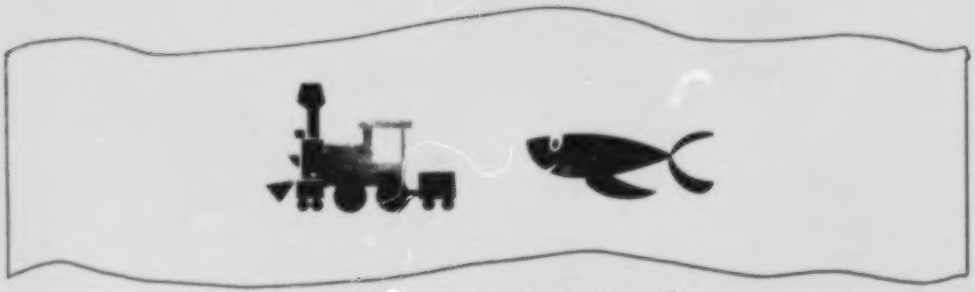
TEST MATERIALS:

5 sets of drawings bound in five 8 1/2" × 11" booklets with three pages of drawings in each. A blank sheet of paper is inserted between pages on which drawings appear so that the pictures cannot be seen through the paper.

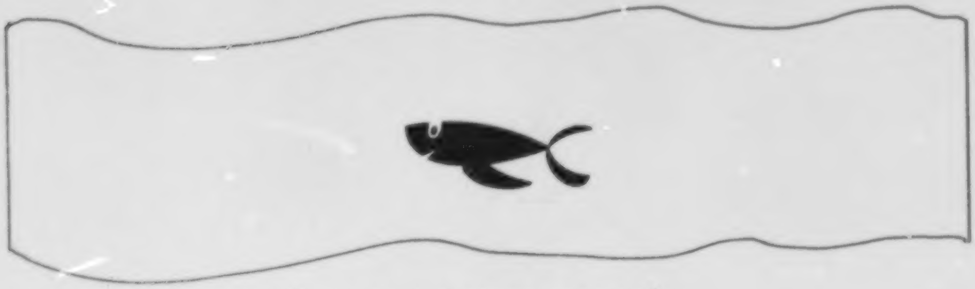
The drawings are reproduced on the following pages.

VISUAL MEMORY - PICTURES (continued)

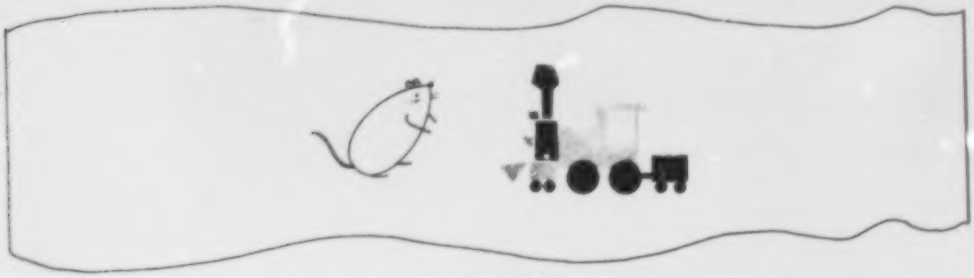
Practice Set



(page 1 - original pictures)



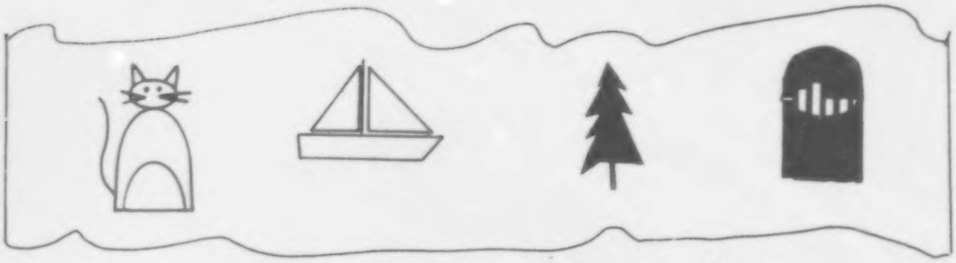
(page 2 - picture removed)



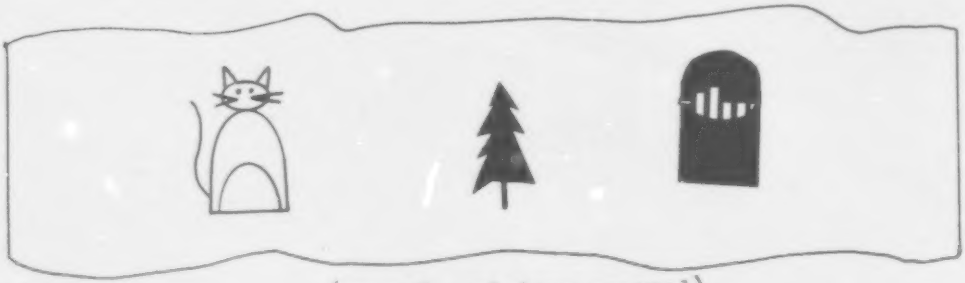
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

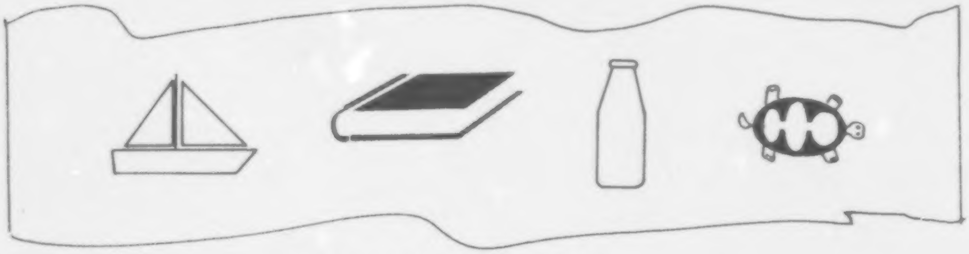
Set I



(page 1 - original pictures)



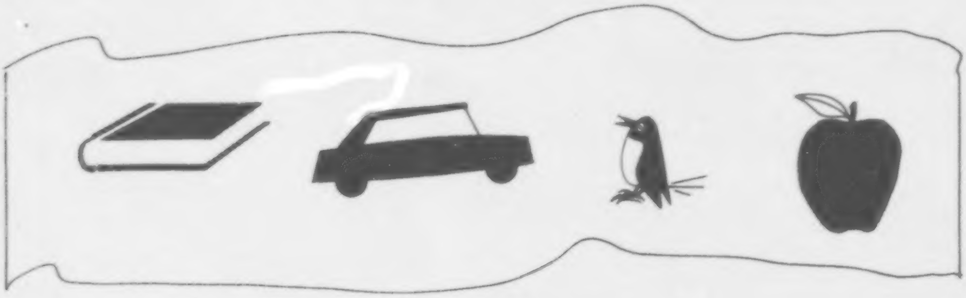
(page 2 - picture removed)



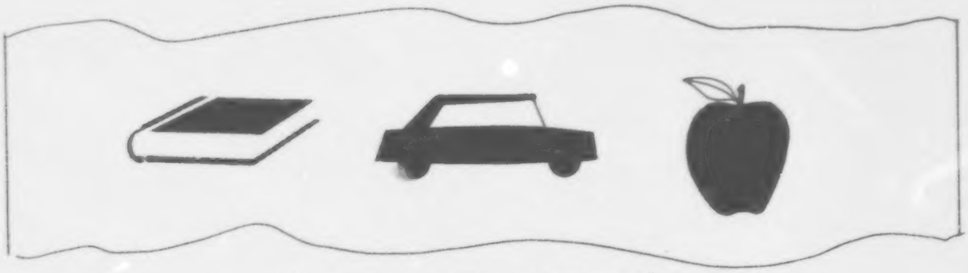
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

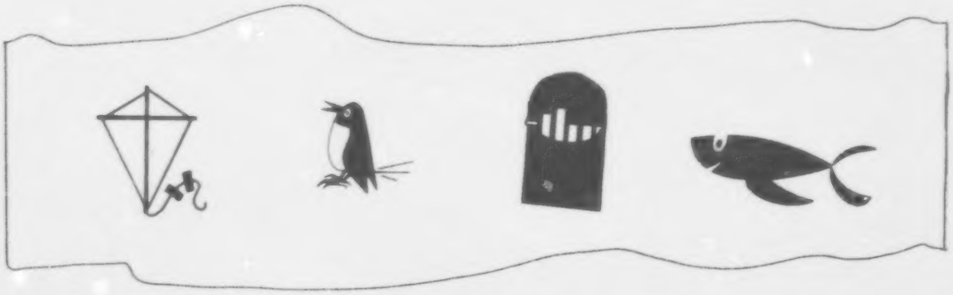
Set II



(page 1 - original pictures)



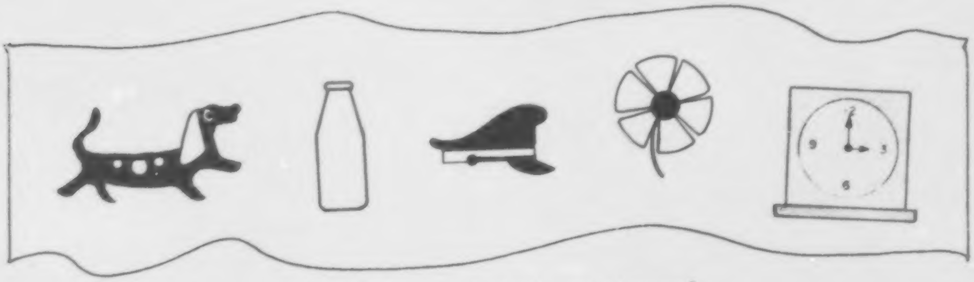
(page 2 - picture removed)



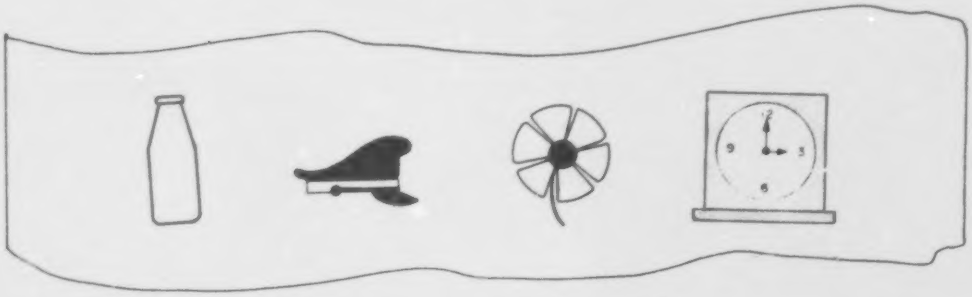
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

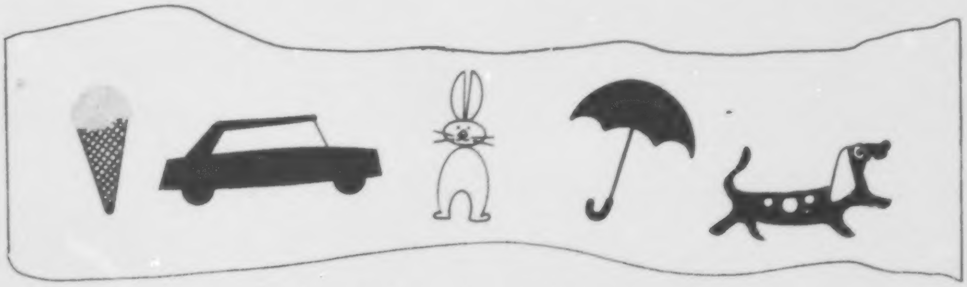
Set III



(page 1 - original pictures)



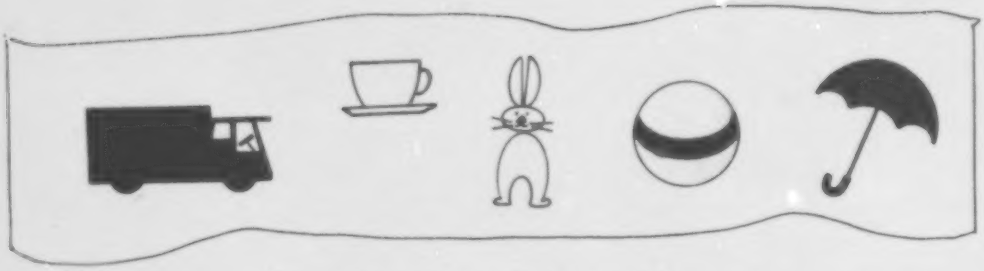
(page 2 - picture removed)



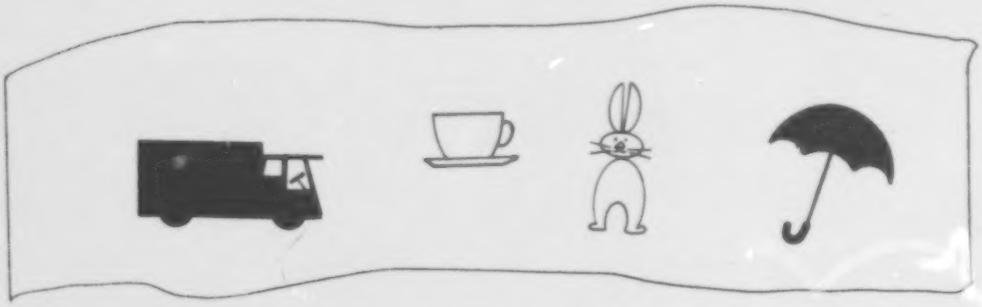
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

Set IV



(page 1 - original pictures)



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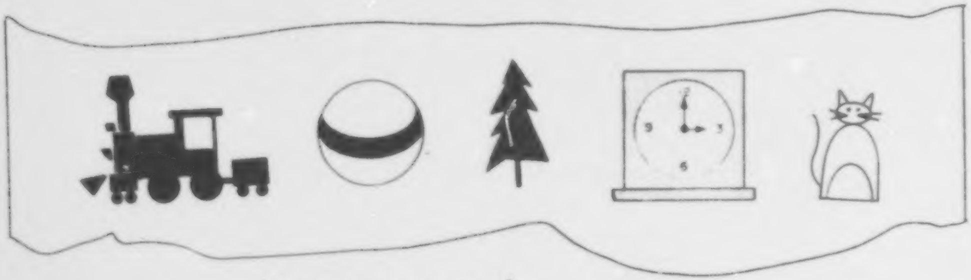

(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

TEST DIRECTIONS:

HERE ARE PICTURES OF SOME THINGS YOU KNOW.

Place Practice Set in front of the child.

LOOK AT EACH OF THESE PICTURES VERY CAREFULLY.

Make sure the child attends to the pictures.

ON THE NEXT PAGE THE PICTURES ARE THE SAME, BUT ONE OF THESE (pointing to the pictures) WILL BE MISSING. YOU HAVE TO REMEMBER THE PICTURES ON THIS PAGE SO THAT YOU KNOW WHAT IS MISSING ON THE NEXT PAGE.

Make sure the child looks at both pictures. If the child does not look at each picture, say:

LOOK AT EACH ONE.

Since the paper is thin and the pictures can be seen through from the page underneath that being shown to the child, a clean sheet of paper has been placed between the one being shown and those underneath it. (Fold the page with the drawings and the plain paper back under the next two pages.)

ALL RIGHT, WHAT PICTURE IS MISSING FROM THIS PAGE THAT WAS ON THE PAGE YOU JUST LOOKED AT?

If the child is correct, mark under First Recall on score sheet, and proceed with Set I. If the child does not reply, or is incorrect, say:

WHAT ELSE WAS ON THE LAST PAGE THAT ISN'T ON THIS PAGE?

Pause. If correct, mark under Second Recall on score sheet, and proceed with Set I. If no reply, then say:

DO YOU KNOW WHAT IS MISSING?

If the child is correct this time, mark under Third Recall, and proceed with Set I. If the child still cannot recall, then proceed as follows:

I'LL SHOW YOU SOME NEW PICTURES.

Turn to the third page of the Practice Set, showing the mouse and the engine. Say:

VISUAL MEMORY - PICTURES (continued)

WHICH ONE OF THESE WAS ON THE FIRST PAGE BUT NOT IN THE PICTURES I JUST SHOWED YOU?

If the child cannot recognize the removed picture in the new set, tell and show him the train engine. Tell the child:

LET'S TRY ANOTHER GAME LIKE THIS.

Proceed with the same directions through Set IV.

In scoring this test, if the child makes a mistake in vocabulary, such as calling the bird a duck or the engine a train, this is acceptable. However, be sure to note this in the Comments.

Continue through all four items in this assessment, plus the Practice Set.

Note that for each of the five booklets, the third page (e.g., mouse and engine in the Practice Set) is not used if the child is successful within the first three recalls.

Visual Memory: Pictures

Item No.	Set	Original Set	Recalls			New Set	Correct	Incorrect
			1st	2nd	3rd			
	Prac.	Engine Fish				Mouse Engine		
101.	1	Car Boat Tree Crayons				Boat Book Bottle Turtle		
102	2	Book Car Bird Apple				Kite Bird Crayons Fish		
103.	3	Dog Bottle Hat Flower Clock				Cone Car Rabbit Umbrella Dog		
104.	4	Truck Cup Rabbit Ball Umbrella				Engine Ball Tree Clock Cat		

Tester's Scoring Grid

VISUAL MEMORY - PICTURES (continued)

The score for this scale is the number of items answered correctly on the first recall. A weighted score had also been constructed by assigning the following numbers: 5 - correct on first recall, 4 - correct on second recall, 3 - correct on third recall, 1 - correct on new set. This weighted score provided no more information than did the unweighted score and is, therefore, not reported. In additon, the weighted score may have been inaccurate for some children. Comments by testers in a subsequent testing session (K-02) indicated that some testers may have given the recall trials if the child made no response, but not if he gave an incorrect response.

Kindergarten
Fall

Form K-01
Items 105-110

COLOR - MATCHING

TEST MATERIALS:

2 sets of 3 1/2" x 3 1/2" cards with a two-inch circular area of color on each card

Child's set of colors:	yellow, blue, brown, red, orange, green, black
Tester's set of colors:	the first six colors of the child's set; black is excluded

TEST DIRECTIONS:

I HAVE SOME COLOR CARDS. I AM GOING TO PUT THEM ON THE TABLE.

Arrange tester's color cards on the table, from left to right: yellow, blue, brown, green, orange, red. Note that the tester's set does not include black.

NOW I AM GOING TO PUT SOME ON THE TABLE FOR YOU, TOO.

Arrange pupil's cards on the table in front of the child with, from tester's left to right: orange, blue, red, black, brown, yellow, green. Pause for any spontaneous comments from pupil and record them in "Other Observations."

Touch your green card, but do not name the color.

LOOK AT THE COLOR CARD I AM TOUCHING. NOW LOOK AT ALL OF YOUR COLOR CARDS. DO YOU HAVE ONE JUST LIKE IT?

If the child does not spontaneously point to his card, then say:

PUT YOUR FINGER ON THE COLOR CARD OF YOURS THAT IS JUST LIKE THIS ONE.

If the pupil does not understand directions, or touches tester's card rather than his own, say:

PUT YOUR FINGER ON ONE OF THESE COLOR CARDS (pointing to his set) THAT IS JUST LIKE THIS ONE (the one I am touching).

COLOR - MATCHING (continued)

Proceed in the order listed on the scoring sheets.

When Matching is completed, remove tester's set of color cards from the table, and start color Naming.

Continue all three parts of the Color Inventory whether or not the child makes three consecutive errors.*

Color: Matching

Item No.		Correct Response	Incorrect Response	No Response
105.	Green			
106.	Blue			
107.	Orange			
108.	Brown			
109.	Red			
110.	Yellow			

Tester's Scoring Grid

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*In the tester training session, the test administrators were instructed to discontinue testing after a total of three errors rather than after three consecutive errors.

Kindergarten
Fall

Form K-01
Items 111-117

COLOR - NAMING

TEST MATERIALS:

The child's set of color cards as described in 019.

TEST DIRECTIONS:

Point in order to the color cards, starting with orange, and say:

CAN YOU TELL ME THE NAME OF THE COLORS?

WHAT COLOR IS THIS?

AND THIS ONE?

When Naming is completed, leave cards set up as they are, and start Identification of colors.

Color: Naming

Item No.		Correct Response	Incorrect Response	No Response
111.	Orange			
112.	Blue			
113.	Red			
114.	Black			
115.	Brown			
116.	Yellow			
117.	Green			

Tester's Scoring Grid

COLOR - IDENTIFYING

TEST MATERIALS:

The child's set of color cards as described in 019.

TEST DIRECTIONS:

WOULD YOU GIVE ME THE RED CARD?

Proceed, using the order listed on the scoring sheet.

Color: Identifying

Item No.		Correct Response	Incorrect Response	No Response
118.	Red			
119.	Brown			
120.	Green			
121.	Orange			
122.	Yellow			
123.	Blue			

Tester's Scoring Grid

Kindergarten
Fall

Form K-01
Item 124

RESPONSE TO VERBAL DIRECTIONS

Item No.		
124.	No compliance. Did not do what was asked.	☐
	Little compliance. Did not do what was asked in most instances unless controls used.	☐
	Some compliance. Did (or tried to do) what was asked in some tasks.	☐
	Full compliance. Did exactly (or tried to do) what was asked on each task.	☐

Tester's Scoring Grid

ATTENTION TO TASKS

Item No.		
125.	Attended well to tasks.	☐
	Attended well to some tasks but not all.	☐
	Attention wandered periodically.	☐
	Inattentive unless continually directed.	☐

Tester's Scoring Grid

KINDERGARTEN

SPRING TEST BATTERY

FORM K-02

INTRODUCTION

Kindergarten - Spring Testing

Form K-02

The end-of-year test battery given in May of the kindergarten year, referred to as K-02, was planned primarily to assess gain in mathematics over the school year. The test materials, test administration conditions, and tester training procedure were the same as for K-01.

Although most of the test consisted of items given in K-01, deletions were made of items that a large percentage of children had correctly answered in K-01, and more difficult items were included to extend certain scales. In addition, forms parallel to certain of the K-01 tests were added which utilized materials either more or less concrete than those within K-01. The only new scales were two included to measure conservation of number.

Since the length of the K-02 battery was extended by the addition of more difficult items and parallel scales, the time required to administer the complete battery to each child would have been too long for a single testing session. Therefore, the population was divided into four sub-populations. Six of the tests were given to all four sub-populations, while each of the other fourteen tests in the K-02 battery was given to only one of the sub-populations. The set of tests administered to each sub-population took approximately 45 minutes to administer.

The assignment of students to one of the four sub-populations was by school and sex using a random number program of the Stanford Computation Center so that approximately one-fourth of the population received each form.

The assignment of the K-02 tests to the total and sub-populations is outlined below.

Tests Administered to Total Population	Scales Derived from Test
Geometric Shapes - Identifying	103, 104
Counting Members of a Given Set - Picture Cards	109, 110, 151, 152
Counting Members of a Given Set - Objects	111
Equivalent Sets - Objects	118
Equivalent Sets - Dots	119
Ordering - Objects, Pictures, Geometric Shapes	121, 123, 125, 126, 147
Tests Administered to Sub-Population W Only	
Visual Memory - Objects	114
Visual Memory - Picture Cards	133
Visual Memory - Shapes	135
Tests Administered to Sub-Population X Only	
Counting Buttons and Writing Numerals	105, 106, 107, 108, 153, 154
Identification of Numerals	112, 113
Vocabulary	116, 117
Tests Administered to Sub-Population Y Only	
Geometric Shapes - Naming	101, 102
Ordinal Number	120
Classifying	128, 129, 130, 145
Tests Administered to Sub-Population Z Only	
Visual Memory - Pictures	131
Ordering - Sets of Objects	137
Ordering - Pictured Sets	139
Conservation - Pictures	141, 146
Conservation - Dots	142, 146} composite

GENERAL INSTRUCTIONS TO THE TESTERS FOR ADMINISTERING K-02 TESTS

ELEMENTARY MATHEMATICS PROJECT

Spring Inventory, 1967 -- Kindergarten Form K-02

GENERAL DIRECTIONS

1. Setting for Administration of Tests

It is important to have a separate room, if at all possible, so that interruptions and distractions are minimized.

In introducing these tests to the child, make certain that they are always referred to as games and not as tests. The child will feel more comfortable if this is not presented as a testing situation and if the tester chats with the child to put him at ease before starting.

2. Equipment

You will need a table and two chairs. Preferably, the table and chairs should be low (from the kindergarten or first grade classroom) so that they are a comfortable height for the child. Seat the child across the table from you.

The materials you will need are those supplied and include:

1	set of geometric shapes
70	buttons
5	boxes with tops (jewelry size)
3	pads of paper
2	crayons
1	set of 10 cards marked "Counting Members of a Given Set"
1	box labeled "Counting Members of a Given Set - Objects"
1	set of 12 envelopes with coins inside and numerals on them
1	envelope labeled "Visual Memory Objects" containing: airplane, apple, book, button, car, spoon, clock, horse, key, and pencil
12	blocks
2	sheets of construction paper
1	glassine envelope containing a yarn ring
1	set of 6 cardboard cards marked "Equivalent Sets - Objects"
1	set of 6 cards with dots marked "Equivalent Sets"

5 trucks

25 marbles

1 box labeled "Ordering"

1 envelope marked "Ordering"

1 set of 7 envelopes marked "Classifying"
(Sets I, III, V, VII and IX, VIII, XI and XII)

1 envelope labeled "Visual Memory Pictures"

1 set of 5 envelopes marked "Visual Memory Picture Cards"

1 envelope marked "Visual Memory Shapes"

1 set of 15 cardboard cards marked "Ordering Sets of Objects"

1 set of 15 cards marked "Ordering Pictured Sets"

1 set of 6 cards marked "Conservation - Pictures"

1 set of 6 cards marked "Conservation - Dots"

1 envelope of extra rubber bands

Some of the above materials are used in more than one test:

Buttons - Counting and Equivalent Sets

Blocks - Vocabulary and one is used for Visual Memory Objects

Small jewelry boxes - for Counting and one is used for Visual Memory Objects

3. Procedure

Read over the instructions for administering the tests several times, and become familiar with the materials before you start testing your children.

The instructions for you, as tester, are typed in lower case. What you actually say to the child is typed in capital letters.

Follow the written directions carefully. Do not probe to get an answer beyond what is suggested in the directions. This is an evaluation and should not be used as a teaching situation.

Use reassurance without specifying that responses are right or wrong. This may be done in a variety of ways:

Repeating what the child has said in a reassuring voice.
Remarks such as "Um-Hum," "All right."
Comments between tests such as "You do these very well."
Conversation with the child between tests.

In order that the child not experience failure, certain tests are not to be continued if the child fails 3 tasks in that part of the test. This will be noted in the instructions for the specific tests. On tests such as Ordering, you wil continue the entire test whether the child misses three tasks or not.

Keep all equipment in a box under the table to your right. Place on the table only those items required for a given task, along with the instructions and score sheets for that particular task. Remove materials used for a task from the table before beginning the next part of the testing.

You will find that many of the children become fascinated by the toys being used as test materials. This may interfere with their attention to the task itself. In these instances, tell the child that he will have a chance to play with the toys after you and he have finished the games you will do together. Make certain that you do, then, permit the child to have a few minutes to play with the toys he found most interesting. This can be done without spending much extra time by allowing the child to play while you are sorting your materials and getting them ready for testing the next child.

4. Scoring

The scoring sheets should be completely filled out.

Be certain to enter the tester's name and date of the testing on each scoring sheet. Use the "Comments" space whenever relevent. If there is insufficient space for comments for any sub-test, make the comments on the last sheet of the booklet (labeled "Additional Comments"). Identify clearly the sub-test to which the comments refer. If doubtful about the correctness of a response, write exactly what the child said in the comment space.

5. Rating the Child's Behavior

The last two items on the next-to-last page of the Pupil Score Sheet, entitled Response to Verbal Directions and Attention to Tasks, are rating scales. These are included as a method of evaluating the child's behavior in the testing situation. Make a rating on each of these two scales as soon as you finish testing the child. Mark the point on each scale that best describes a given child's behavior on these particular dimensions during the testing situation. (Note that the end points on these two scales are in reverse order.)

6. Important Considerations

In order for these test results to be meaningful:

(a) It is imperative that the tester adhere to the written directions as closely as possible. Rapport with the child is crucial; however, cueing the child beyond the written directions invalidates the results.

(b) It is imperative that recording of children's performance on the score sheet be as accurate as possible. Score sheets may be completed in pencil; overemphasis on neatness may be unnecessarily time-consuming. Entries should be legible and accurate; neatness is not a primary consideration.

(c) It is imperative that every sub-test be completely recorded.

(d) It is imperative that the testing be scheduled so that you will finish testing the children assigned to you by the end of the school year.

7. Forms W, X, Y, and Z

There are four different forms of the test. Some sub-tests are included on all four forms and some are unique to a specific form. A label in the upper right hand corner of the first page of instructions for each sub-test indicates whether the sub-test belongs in Form W, X, Y, or Z, or if it is given in all forms (W, X, Y, Z).

Each score sheet is identified by an W, X, Y, or Z. The tester should test all the children assigned Form W in a class before going on to doing all the X's, etc. (A quarter of the children in each class will be assigned to each of the four forms.)

PUPIL SCORE SHEET Kindergarten: Spring Inventory, 1967 Form K-02 W

W Tester's Name: ______________________

Date Given: ______________________, 1967 1.

VISUAL MEMORY - Objects

Item No.		Original Set	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	No Attempt
11	1	Car Horse Block Pencil				Button Clock Horse Spoon			
12	2	Spoon Airplane Crayon Key				Key Car Box Pencil			
13	3	Book Apple Clock Box				Crayon Block Button Clock			
14	4	Car Book Airplane Block				Apple Key Car Horse			
15	5	Pencil Key Crayon Button				Clock Block Book Crayon			

GEOMETRIC SHAPES

Identifying

Item No.			Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
6	1	Triangle			
7	2	Rectangle			
8	3	Star			
9	4	Circle			
10	5	Square			

Comments:

Comments:

COUNTING MEMBERS OF A GIVEN SET

Picture Cards

Comments:

Item No.	Card No.	Counted Correctly (✓)	Attempted, Incorrect (✓)	No Attempt (✓)
16	1			
17	2			
18	3			
19	4			
20	5			
21	6			
22	7			
23	8			
24	9			
25	10			

COUNTING MEMBERS OF A GIVEN SET

Objects

Comments:

Item No.	Set No.	Counted Correctly (✓)	Attempted, Incorrect (✓)	No Attempt (✓)
26	1			
27	2			
28	3			
29	4			
30	5			
31	6			
32	7			
33	8			
34	9			
35	10			

VISUAL MEMORY - Picture Cards

Item No.		Original Set	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	No Attempt
		Practice Set: Engine Fish				Mouse Engine			
36	1	Cat Boat Tree Crayons				Boat Book Bottle Turtle			
37	2	Book Car Bird Apple				Kite Bird Crayons Fish			
38	3	Dog Bottle Hat Flower Clock				Cone Car Rabbit Umbrella Dog			
39	4	Truck Cup Rabbit Ball Umbrella				Engine Ball Tree Clock Cat			

EQUIVALENT SETS

Objects

Item No.	Set No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
40	1			
41	2			
42	3			
43	4			
44	5			
45	6			

Comments:

EQUIVALENT SETS

Dots

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
46	1			
47	2			
48	3			
49	4			
50	5			
51	6			

Comments:

VISUAL MEMORY - Shapes

Item No.		Original Set	Recall 1st	Recall 2nd	Recall 3rd	Described or Drawn	New Set	Correct	Incorrect	No Attempt
52	1	Rectangle Wedge Circle					Arrow Circle Triangle			
53	2	Crescent Star Rectangle Ring					Wedge Quarter-circle Star Cone			
54	3	Square Arrow Semi-circle					Arch Wedge Circle Square			
55	4	Circle Triangle Arrow Wedge					Triangle Star Ring Diamond			

ORDERING

Item No.	Ordered:		Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle size items or some other partially correct attempt	Randomly ordered	No Attempt	Handed:		Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
56-57	1a	Circular Shapes					1b	smallest circle			
58	2	Triangular Shapes									
59-60	3a	Buttons					3b	smallest button			
61-62	4a	Blocks					4b	largest block			
63	5	Drawings-Buttons									
64-65	6a	Drawings-Cars					6b	drawing of lrgst car			
66-67	7a	Plastic Straws					7b	shortest straw			
68-69	8a	Rectangular Shapes					8b	longest shape			
70	9	Drawings-Rectangles									

Comments:

Comments:

RESPONSE TO VERBAL DIRECTIONS

(Mark appropriate space)

Item No.

160 (a) No compliance. Did not do what was asked. ☐

(b) Little compliance. Did not do what was asked in most instances unless controls used. ☐

(c) Some compliance. Did (or tried to do) what was asked in some tasks. ☐

(d) Full compliance. Did exactly (or tried to do) what was asked on each task. ☐

ATTENTION TO TASKS

(Mark appropriate space)

Item No.

161 (a) Attended well to all tasks. ☐

(b) Attended well to some tasks but not to all. ☐

(c) Attention wandered periodically. ☐

(d) Inattentive unless continually directed. ☐

Additional Comments

98

V

PUPIL SCORE SHEET Kindergarten: Spring Inventory, 1967 Form K-GP X

X Tester's Name: ______________________

Date Given: ______________________, 1967

1.

GEOMETRIC SHAPES

Identifying

Item No.			Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
6	1	Triangle			
7	2	Rectangle			
8	3	Star			
9	4	Circle			
10	5	Square			

Comments:

COUNTING MEMBERS OF A GIVEN SET

Picture Cards

Item No.	Card No.	Counted Correctly (✓)	Attempted, Incorrect (✓)	No Attempt (✓)
16	1			
17	2			
18	3			
19	4			
20	5			
21	6			
22	7			
23	8			
24	9			
25	10			

Comments:

COUNTING MEMBERS OF A GIVEN SET

Objects

Item No.	Set No.	Counted Correctly (✓)	Attempted, Incorrect (✓)	No Attempt (✓)
26	1			
27	2			
28	3			
29	4			
30	5			
31	6			
32	7			
33	8			
34	9			
35	10			

Comments:

EQUIVALENT SETS

Objects

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
40	1			
41	2			
42	3			
43	4			
44	5			
45	6			

Comments:

EQUIVALENT SETS

Dots

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
46	1			
47	2			
48	3			
49	4			
50	5			
51	6			

Comments:

Comments:

Item No.		Ordered:	Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle size items or some other partially correct attempt)	Randomly ordered	No Attempt		Handed:	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
56-57	1a	Circular Shapes					1b	smallest circle			
58	2	Triangular Shapes									
59-60	3a	Buttons					3b	smallest button			
61-62	4a	Blocks					4b	largest block			
63	5	Drawings-Buttons									
64-65	6a	Drawings-Cars					6b	dr. of lrgst car			
66-67	7a	Plastic Straws					7b	shortest straw			
68-69	8a	Rectangular Shapes					8b	longest shape			
70	9	Drawings-Rectangles									

COUNTING BUTTONS

Item No.	Number Asked	Correct Response (✓)	Incorrect Response (✓)	No Response (✓)
71	3			
72	5			
73	4			
74	6			
75	8			
76	7			
77	9			
78	12			
79	10			

Comments:

WRITING NUMERALS

Item No.	Numeral	Formed Correctly (✓)	Attempted, but Incorrect (✓)	No Attempt (✓)
80	3			
81	5			
82	4			
83	6			
84	8			
85	7			
86	9			
87	12			
88	10			

Comments:

IDENTIFYING NUMERALS

Item No.	Numeral	Identified Correctly (✓)	Attempted, but Incorrect (✓)	No Attempt (✓)
89	3			
90	1			
91	4			
92	5			
93	0			
94	8			
95	7			
96	9			
97	12			
98	15			

Comments:

VOCABULARY

Comments:

Item No.	No.	Word	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
99	1	Above			
100	2	Bottom			
101	3	Between			
102	4	Each			
103	5	Remove			
104	6	Set			
105	7	Subset (bl.)			
106	8	More than			
107	9	As many as			
108	10	Fewer than			

Comments:

Item No.	No.	Word	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
109	11	Join			
110	12	Side			
111	13	Below			
112	14	Edge			
113	15	Left			
114	16	Outside			
115	17	Right			
116	18	Subset (yrn)			
117	19	Shorter than			

RESPONSE TO VERBAL DIRECTIONS (Mark appropriate space)

Item No. 160.

(a) No compliance. Did not do what was asked ☐

(b) Little compliance. Did not do what was asked ☐

(c) Some compliance. Did (or tried to do) what was asked in some tasks. ☐

(d) Full compliance. Did exactly (or tried to do) what was asked on each task. ☐

ATTENTION TO TASKS (Mark appropriate space)

Item No. 161.

(a) Attended well to all tasks ☐

(b) Attended well to some tasks but not to all. ☐

(c) Attention wandered periodically. ☐

(d) Inattentive unless continually directed. ☐

Additional Comments

PUPIL SCORE SHEET **Kindergarten: Spring Inventory, 1967** Form K-02 Y

Y Tester's Name: ______________________

Date Given: ______________________, 1967

GEOMETRIC SHAPES

Naming

Item No.			Correct Response	Incorrect Response	No Attempt
1	1	Circle			
2	2	Star			
3	3	Square			
4	4	Triangle			
5	5	Rectangle			

Comments:

GEOMETRIC SHAPES

Identifying

Item No.			Correct Response	Incorrect Response	No Attempt
6	1	Triangle			
7	2	Rectangle			
8	3	Star			
9	4	Circle			
10	5	Square			

Comments:

COUNTING MEMBERS OF A GIVEN SET

Picture Cards

Item No.	Card No.	Counted Correctly	Attempted, Incorrect	No Attempt
16	1			
17	2			
18	3			
19	4			
20	5			
21	6			
22	7			
23	8			
24	9			
25	10			

Comments:

COUNTING MEMBERS OF A GIVEN SET

Objects

Item No.	Set No.	Counted Correctly	Attempted, Incorrect	No Attempt
26	1			
27	2			
28	3			
29	4			
30	5			
31	6			
32	7			
33	8			
34	9			
35	10			

Comments:

EQUIVALENT SETS

Objects

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
40	1			
41	2			
42	3			
43	4			
44	5			
45	6			

Comments:

EQUIVALENT SETS

Dots

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
46	1			
47	2			
48	3			
49	4			
50	5			
51	6			

Comments:

ORDERING

Item No.	Ordered:		Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle size items or some other partially correct attempt	Randomly ordered	No Attempt	Handed:		Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
56-57	1a	Circular Shapes					1b	smallest circle			
58	2	Triangular Shapes									
59-60	3a	Buttons					3b	smallest button			
61-62	4a	Blocks					4b	largest block			
63	5	Drawings-Buttons									
64-65	6a	Drawings-Cars					6b	drawing of largest car			
66-67	7a	Plastic Straws					7b	shortest straw			
68-69	8a	Rectangular Shapes					8b	longest shape			
70	9	Drawings-Rectangles									

Comments:

CLASSIFYING

Set I. Circles (118)

Sorted:

4 circles, no other shapes ___

3 circles, no other shapes ___

2 or fewer circles or other shapes included ___

No attempt or "don't know" ___

Set III. Triangles and Red (119)

Sorted:

4 red triangles, no other shapes or color ___

3 red triangles, no other shapes or color ___

2 or fewer red triangles or other shapes or colors included ___

No attempt or "don't know" ___

Set V. Same Size (120)

Sorted shapes other than circles or squares or sorted circles or squares of wrong size Yes___No___

Record in next section only if "No" is checked above.

Sorted:

3 or 4 circles and 3 or 4 squares ___

3 or 4 circles or 3 or 4 squares ___

2 or fewer circles and 2 or fewer squares ___

No attempt or "don't know" ___

Set VII (121-125)

A. Smallest Members (121)

4 smallest shapes, no wrong size ___

3 smallest shapes, no wrong size ___

Include one or more shapes of incorrect size or found 2 or fewer smallest shapes ___

No response or "don't know" ___

Prompted: Yes___No___

After Prompting:

Record only if "Yes" Prompting

4 smallest shapes, no wrong size ___

3 smallest shapes, no wrong size ___

Included one or more shapes of incorrect size or found 2 or fewer smallest shapes ___

No response or "don't know" ___

B. Handed Smallest Red Circle (122) Yes___No___

If "Yes" Prompting

Prompted: Yes___No___

After prompting, handed smallest red circle Yes___No___

No response or "don't know" ___

C. Handed Largest Yellow Rectangle (123) Yes___No___

If "Yes" Prompting

Prompted: Yes___No___

After Prompting, handed largest yellow rectangle Yes___No___

No response or "don't know" Yes___No___

D. Triangles or Red Squares (124)

Correct (more triangles) ___

Incorrect (more red squares) ___

No response or "don't know" ___

Set VII. (cont'd)

E. Circles, Blue Rectangles (125)

Correct (more circles) ___

Incorrect (more blue rect.) ___

No response or "don't know" ___

Set VIII. Triangles (126)

Sorted:

4 triangles, no other shapes ___

3 triangles, no other shapes ___

2 or fewer triangles or other shapes included ___

No attempt or "don't know" ___

Set IX. Circles or Squares (127)

Correct (more squares) ___

Incorrect (more circles) ___

No response or "don't know" ___

Set XI. Forks, Knives, Spoons (128)

Correct (more forks) ___

Incorrect (more green spoons) ___

No attempt or "don't know" ___

Set XII. Circles, Squares (129)

Correct (more squares) ___

Incorrect (more circles) ___

No attempt or "don't know" ___

ORDINAL NUMBER

Item No.		Correct Response (✓)	Incorrect Response (✓)	No Response (✓)
130	First			
131	Third			
132	Fifth			
133	Fourth			
134	First			
135	Last			
136	Second			
137	Fourth			

RESPONSE TO VERBAL DIRECTIONS

(Mark appropriate space)

Item No.

160 (a) No compliance. Did not do what was asked. ☐

(b) Little compliance. Did not do what was asked in most instances unless controls used. ☐

(c) Some compliance. Did (or tried to do) what was asked in some tasks. ☐

(d) Full compliance. Did exactly (or tried to do) what was asked on each task. ☐

ATTENTION TO TASKS

(Mark appropriate space)

Item No.

161 (a) Attended well to all tasks. ☐

(b) Attended well to some tasks but not to all ☐

(c) Attention wandered periodically. ☐

(d) Inattentive unless continually directed. ☐

Additional Comments

PUPIL SCORE SHEET **Kindergarten:** **Spring Inventory, 1967** **Form K-02 Z**

Z **Tester's Name:** ______________________

Date Given: ______________________, 1967

GEOMETRIC SHAPES

Identifying

Item No.			Correct Response (✓)	Incorrect Response (✓)	No Response (✓)
6	1	Triangle			
7	2	Rectangle			
8	3	Star			
9	4	Circle			
10	5	Square			

Comments:

COUNTING MEMBERS OF A GIVEN SET

Picture Cards

Item No.	Card No.	Counted Correctly (✓)	Attempted, Incorrect (✓)	No Attempt (✓)
16	1			
17	2			
18	3			
19	4			
20	5			
21	6			
22	7			
23	8			
24	9			
25	10			

Comments:

COUNTING MEMBERS OF A GIVEN SET

Objects

Item No.	Set No.	Counted Correctly (✓)	Attempted, Incorrect (✓)	No Attempt (✓)
26	1			
27	2			
28	3			
29	4			
30	5			
31	6			
32	7			
33	8			
34	9			
35	10			

Comments:

EQUIVALENT SETS

Objects

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
40	1			
41	2			
42	3			
43	4			
44	5			
45	6			

Comments:

EQUIVALENT SETS

Dots

Item No.	Card No.	Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
46	1			
47	2			
48	3			
49	4			
50	5			
51	6			

Comments:

Z- 3.

VISUAL MEMORY - Pictures

Item No.		Original Set	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	No Attempt
		Practice Set: Engine Fish				Mouse Engine			
138	1	Cat Boat Tree Crayons				Boat Book Bottle Turtle			
139	2	Book Car Bird Apple				Kite Bird Crayons Fish			
140	3	Dog Bottle Hat Flower Clock				Cone Car Rabbit Umbrella Dog			
141	4	Truck Cup Rabbit Ball Umbrella				Engine Ball Tree Clock Cat			

Comments:

ORDERING

Item No.	Ordered:		Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle size items or some other partially correct attempt	Randomly ordered	No Attempt	Handed:		Correct Response (✓)	Incorrect Response (✓)	No Attempt (✓)
56-57	1a	Circular Shapes					1b	smallest circle			
58	2	Triangular Shapes									
59-60	3a	Buttons					3b	smallest button			
61-62	4a	Blocks					4b	largest block			
63	5	Drawings-Buttons									
64-65	6a	Drawings-Cars					6b	drawing of largest car			
66-67	7a	Plastic Straws					7b	shortest straw			
68-69	8a	Rectangular Shapes					8b	longest shape			
70	9	Drawings-Rectangles									

Comments:

ORDERING

Sets of Objects

Item No.	Set No.	Ordered correctly Most-fewest or Fewest-most (✓)	Both end sets ordered correctly Middle sets reversed (✓)	Attempted, but unsuccessful (✓)	No Attempt (✓)
	Prac.				
142	1				
143	2				
144	3				

ORDERING

Pictures

Item No.	Set No.	Ordered correctly Most-fewest or Fewest-most (✓)	Both end sets ordered correctly Middle sets reversed (✓)	Attempted, but unsuccessful (✓)	No Attempt (✓)
	Prac.				
145	1				
146	2				
147	3				

CONSERVATION

Pictures

Item No.	Card No.	Child asserts more dots in TOP row (✓)	Child asserts more dots in BOTTOM row (✓)	Child asserts same number dots each row (✓)	No Attempt (✓)
148	1				
149	2				
150	3				
151	4				
152	5				
153	6				

Comments:

CONSERVATION

Dots

Item No.	Card No.	Child asserts more dots in TOP row (✓)	Child asserts more dots in BOTTOM row (✓)	Child asserts same number dots each row (✓)	No Attempt (✓)
154	1				
155	2				
156	3				
157	4				
158	5				
159	6				

Comments:

RESPONSE TO VERBAL DIRECTIONS

Item No. 160. (Mark appropriate space)

(a) No compliance. Did not do what was asked. ☐

(b) Little compliance. Did not do what was asked in most instances unless controls used. ☐

(c) Some compliance. Did (or tried to do) what was asked in some tasks. ☐

(d) Full compliance. Did exactly (or tried to do) what was asked on each task. ☐

ATTENTION TO TASKS

Item No. 161. (Mark appropriate space)

(a) Attended well to all tasks. ☐

(b) Attended well to some tasks but not to all. ☐

(c) Attention wandered periodically. ☐

(d) Inattentive unless continually directed. ☐

Additional Comments

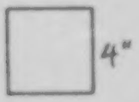
Kindergarten
Spring

Form K-02Y
Items 1-5

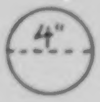
GEOMETRIC SHAPES - NAMING

TEST MATERIALS:

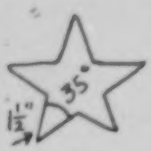
1 set of monochromatic geometric shapes cut from light-weight cardboard



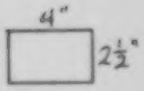
square



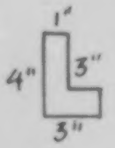
circle



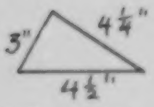
star



rectangle



L-shape



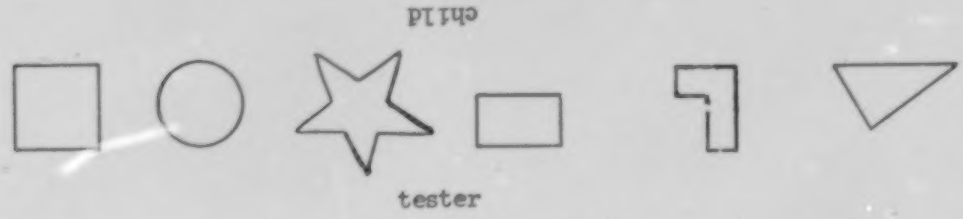
triangle

TEST DIRECTIONS:

I HAVE SOME SHAPES HERE.

I AM GOING TO PUT THEM ON THE TABLE.

Place the set of shapes in front of you. Arrange from your left to right--square, circle, star, rectangle, L-shape, triangle--oriented in the following way--bases of triangle and L-shape toward the child, point of star toward tester, and flange of L to tester's left.



GEOMETRIC SHAPES - NAMING (continued)

Say:

CAN YOU TELL ME THE NAMES OF THE SHAPES?

WHAT IS THIS? (pointing to circle)

AND THIS? (pointing to star)

THIS? (pointing to square)

WHAT IS THIS? (pointing to triangle)

AND THIS? (pointing to rectangle)

Record as Correct, Incorrect, or No Attempt by shape as listed on the score sheet.

Naming

Item No.		Correct Response	Incorrect Response	No Attempt
1.	Circle			
2.	Star			
3.	Square			
4.	Triangle			
5.	Rectangle			

Tester's Scoring Grid

Kindergarten
Spring

Form K-02
Items 6-10

GEOMETRIC SHAPES - IDENTIFYING

TEST MATERIALS:

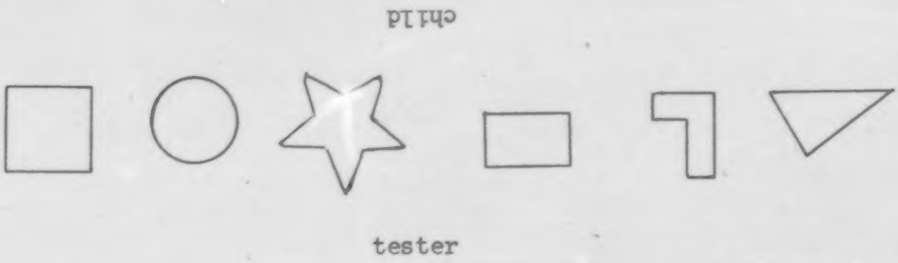
1 set of geometric shapes as described in 102.

TEST DIRECTIONS:

I HAVE SOME SHAPES HERE.

I AM GOING TO PUT THEM ON THE TABLE.

Place the set of shapes in front of you. Arrange from your left to right--square, circle, star, rectangle, L-shape, triangle. Orient them in the following way--bases of triangle and L-shape toward the child, point of star toward tester, and flange of L to tester's left.



Say:

WOULD YOU GIVE ME THE TRIANGULAR SHAPE?

WOULD YOU GIVE ME THE RECTANGULAR SHAPE?

WOULD YOU GIVE ME THE STAR-SHAPE?

NOW, THE CIRCULAR SHAPE.

GEOMETRIC SHAPES - IDENTIFYING (continued)

AND THE SQUARE.

AND NOW THE L-SHAPE.

Record as Correct, Incorrect, or No Attempt by shape as listed on score sheet.

Identifying

Item No.		Correct Response	Incorrect Response	No Attempt
6.	Triangle			
7.	Rectangle			
8.	Star			
9.	Circle			
10.	Square			

Tester's Scoring Grid

Kindergarten
Spring

Form K-02X
Items 71-79

COUNTING BUTTONS

TEST MATERIALS:

70 buttons - 1/2 inch diameter, white, plastic

5 boxes with lids - approximately 3 1/2" × 3 1/2" × 1 1/2", light-weight cardboard (The lids of the boxes were also used as boxes in the testing.)

1 small pad of paper

1 crayon

TEST DIRECTIONS:

LET'S PUT SOME BUTTONS IN THESE BOXES.

Place a heap of buttons in front of the child and give him a box.

WILL YOU PUT TWO BUTTONS IN THE BOX? I WILL MARK A "2" ON THIS PAPER.

Mark "2" on the paper, show child, and place it standing in the box with buttons.

NOW WE WILL KNOW HOW MANY BUTTONS ARE IN IT.

Push the box to your right.
Place another box in front of the child and say:

WOULD YOU PUT THREE BUTTONS IN THIS BOX? (Wait while the child counts out buttons.) WOULD YOU LIKE TO MAKE A "3" ON THIS PAPER?

Give the child the crayon and paper if he is willing to try. If not, write it yourself. Fill in the scoring sheet for both the Counting and Writing Numerals parts of this test.

Continue in the order listed on the scoring sheets.

Stop after child has made three errors in counting.

COUNTING BUTTONS (continued)

Counting Buttons

Item No.	Number Asked	Correct Response	Incorrect Response	No Attempt
71.	3			
72.	5			
73.	4			
74.	6			
75.	8			
76.	7			
77.	9			
78.	12			
79.	10			

Tester's Scoring Grid

WRITING NUMERALS

TEST MATERIALS:

The test materials for this scale are listed with the test materials for 106.

TEST DIRECTIONS:

The directions for this scale are part of the test directions for scale 106.

Writing Numerals

Item No.	Numeral	Formed Correctly	Attempted, Incorrect	No Attempt
80.	3			
81.	5			
82.	4			
83.	6			
84.	8			
85.	7			
86.	9			
87.	12			
88.	10			

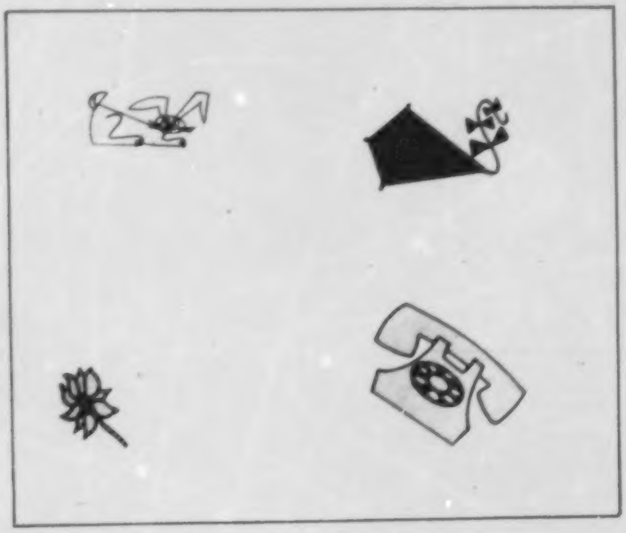
Tester's Scoring Grid

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS

TEST MATERIALS:

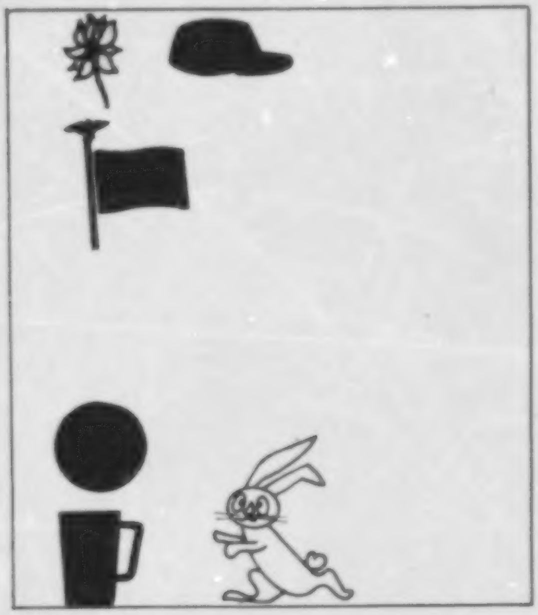
10 6" × 7" cards with varying numbers of drawings of familiar objects on each card. On the back of each card at the top is printed "Counting Members of a Given Set - Top of Card ..." (the cards are numbered 1 through 10 to indicate the order in which they are to be presented to the child), and a digit in the lower left corner which indicates the number of objects pictured on the front of the card.

The cards are reproduced below.

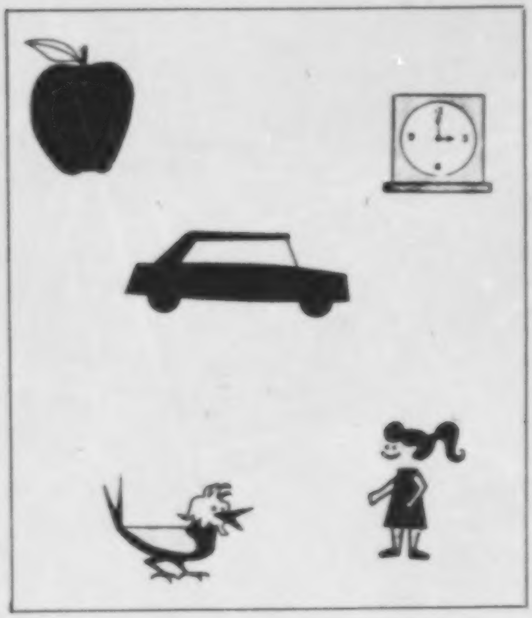


Card 1

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

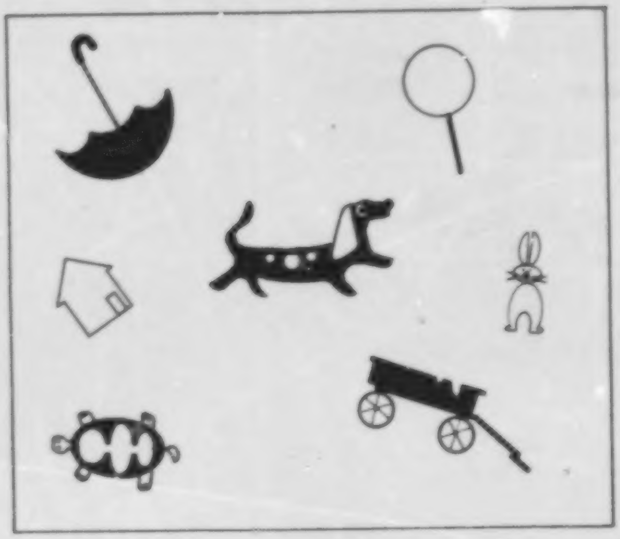


Card 2

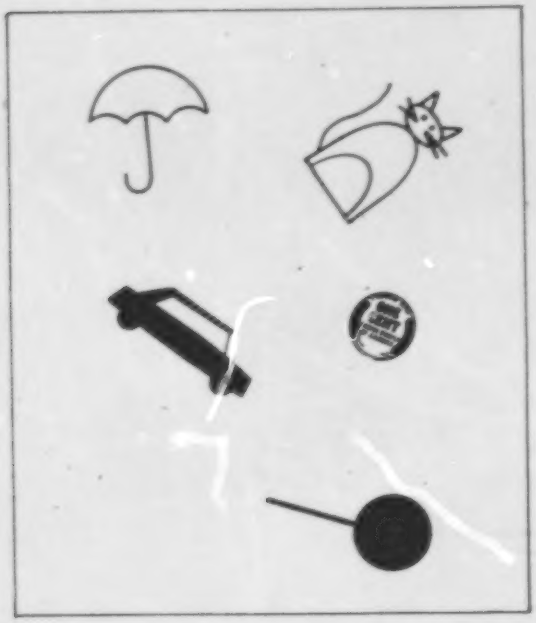


Card 3

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

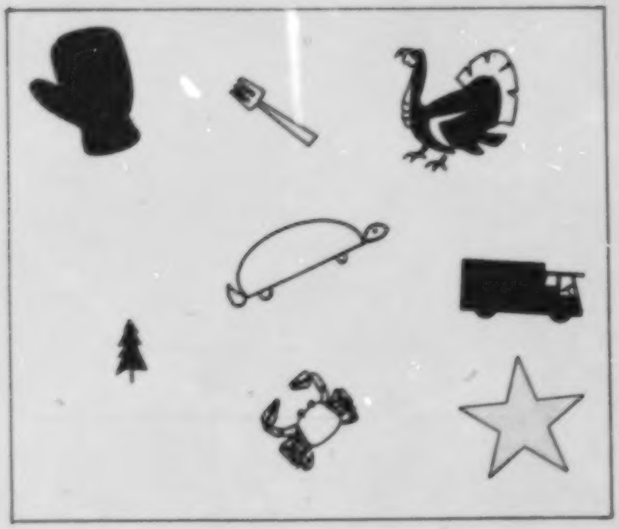


Card 4

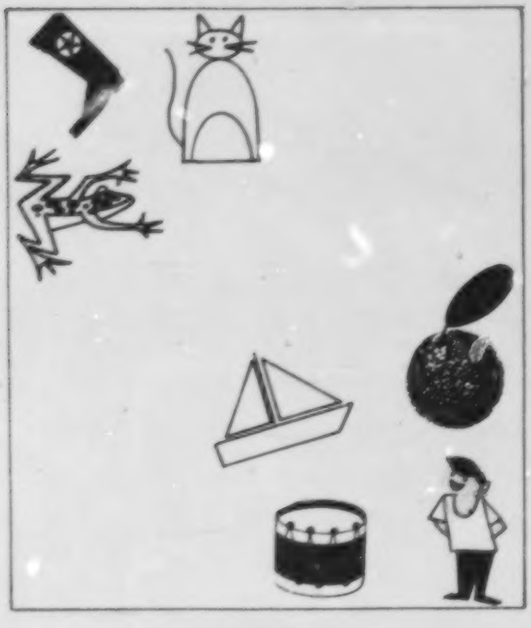


Card 5

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

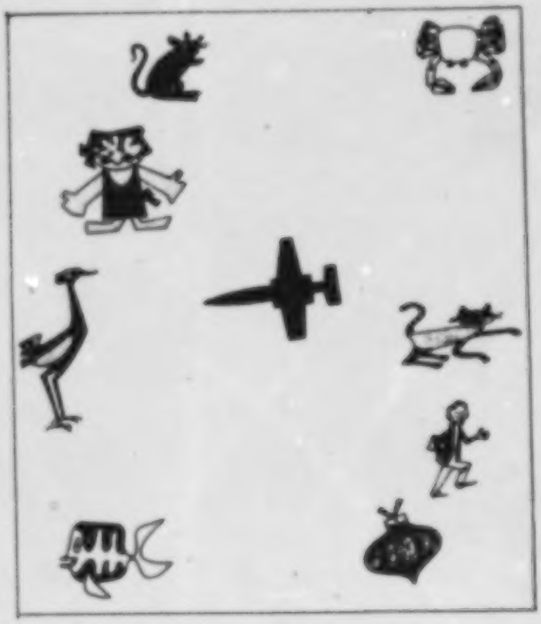


Card 6

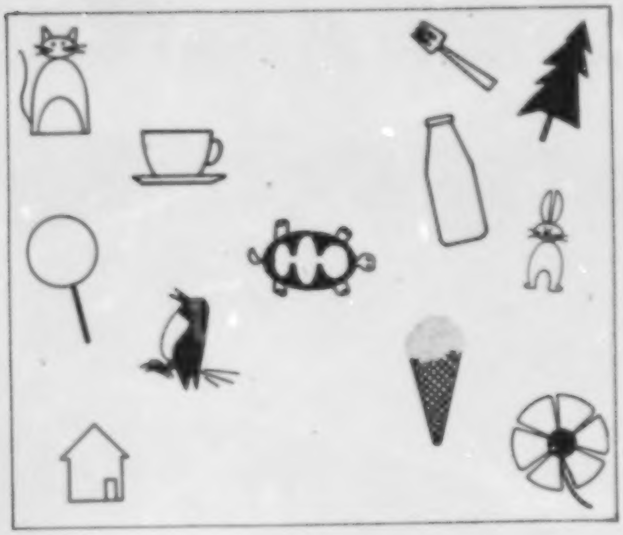


Card 7

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

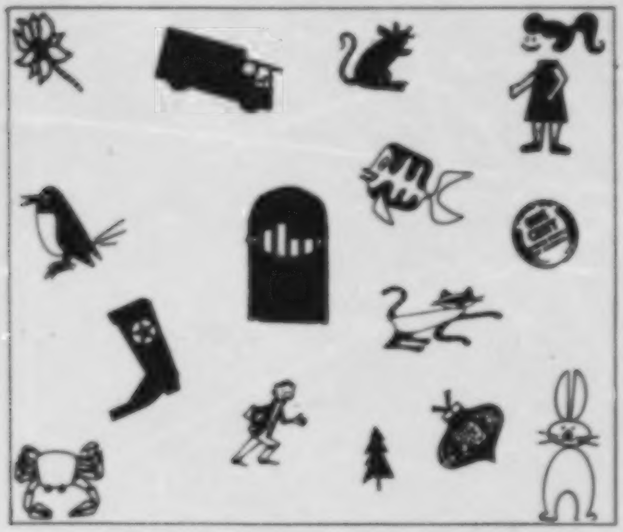


Card 8



Card 9

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)



Card 10

TEST DIRECTIONS:

Place Card 1 in front of the child and say:

HOW MANY MEMBERS ARE THERE IN THIS SET?

If no response, say:

HOW MANY DRAWINGS ARE ON THIS CARD?

Continue in the order and with the position of the card as marked on the back for each card, using the same directions as for Card 1.

Stop after the child has made three errors in counting.

Note that the correct answer is printed in the lower left corner on the back of each card.

COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (continued)

Picture Cards

Item No.	Card No.	Counted Correctly	Attempted, Incorrect	No Attempt
16.	1			
17.	2			
18.	3			
19.	4			
20.	5			
21.	6			
22.	7			
23.	8			
24.	9			
25.	10			

Tester's Scoring Grid

Kindergarten
Spring

Form K-02
Items 26-35

COUNTING MEMBERS OF A GIVEN SET - OBJECTS

TEST MATERIALS:

1 sheet of 11" × 14" white construction paper
6 2" paper clips
12 checkers - all one color
7 1" cubical blocks - wooden

TEST DIRECTIONS:

Set 1

I HAVE A SET OF THINGS HERE. I AM GOING TO PUT THEM ON THE PAPER.

Put four paper clips in a heap at the center of the paper. They need not be piled on top of each other, but they should not be arranged in a regular pattern or in a row.

HOW MANY MEMBERS ARE THERE IN THIS SET?

If no response, say:

HOW MANY THINGS ARE ON THE PAPER?

Set 2

Replace the paper clips in their container and continue with a set consisting of six cubes. Again the cubes need not be piled on top of each other, but should not be arranged in a regular pattern or in a row.

Set 3

Replace the cubes in their container and continue with a set consisting of two paper clips, two cubes, and one checker. If the child enumerates the number of each, ask:

YES, BUT HOW MANY MEMBERS ARE THERE ALL TOGETHER?

Or

COUNTING MEMBERS OF A GIVEN SET - OBJECTS (continued)

HOW MANY THINGS ARE THERE ALL TOGETHER?

As the case may be.

Contimue with Sets 4 through 10 as indicated below using the same wording for instructions as in Sets 1 and 2. For those sets formed of different kinds of objects, ask the supplementary questions above when appropriate.

Set 4

Four paper clips and three checkers.

Set 5

Five paper clips.

Set 6

Three paper clips, three cubes, and two checkers.

Set 7

Seven cubes.

Set 8

Three paper clips, three cubes, and three checkers.

Set 9

All twelve checkers.

Set 10

Six paper clips, five cubes, and four checkers.

COUNTING MEMBERS OF A GIVEN SET - OBJECTS (continued)

Objects

Item No.	Set No.	Counted Correctly	Attempted, Incorrect	No Attempt
26.	1			
27.	2			
28.	3			
29.	4			
30.	5			
31.	6			
32.	7			
33.	8			
34.	9			
35.	10			

Tester's Scoring Grid

IDENTIFICATION OF NUMERALS

TEST MATERIALS:

12 No. 10 white envelopes with varying numbers of counting discs sealed inside. Each envelope has a numeral (0 through 9, 12, 15) written on the front which corresponds to the number of discs. Counting discs rather than buttons were used in the envelopes since buttons were found to tear holes in the envelopes.

TEST DIRECTIONS:

I HAVE SOME ENVELOPES HERE.

Show the envelope to the child so that he can see the numerals.

THEY HAVE SOME BUTTONS IN THEM. THIS (point to the numeral on the envelope) TELLS US HOW MANY BUTTONS ARE INSIDE. THIS ONE HAS A "2" ON IT. IT HAS TWO BUTTONS IN IT.

Randomly spread the envelopes (marked 0-5, including 2) in front of the child with numerals facing the child and all of them visible to him.

GIVE ME THE ENVELOPE THAT HAS 3 BUTTONS INSIDE.

Continue, asking for the envelope that has 1 button, and then the envelope that has 4 buttons.

If the child has failed on these three tasks (3, 1, 4) stop this task.

If the child has been successful on these three trials, then randomly place the remaining envelopes on the table. Do not replace on the table the envelopes that the child has already handed you. Say:

GIVE ME THE ONE WITH 5 BUTTONS INSIDE.

Continue in the order marked on the scoring sheet. Discontinue the test after the child has made three errors.

IDENTIFICATION OF NUMERALS (continued)

Identifying Numerals

Item No.	Numeral	Formed Correctly	Attempted, Incorrect	No Attempt
89.	3			
90.	1			
91.	4			
92.	5			
93.	0			
94.	8			
95.	7			
96.	9			
97.	12			
98.	15			

Tester's Scoring Grid

VISUAL MEMORY - OBJECTS

TEST MATERIALS:

13 familiar objects - toy car, toy horse, wooden block, pencil, plastic spoon, toy airplane, crayon, key, book, plastic apple, toy clock, small cardboard box, plastic button.

A photograph of the objects actually used appears below.

TEST DIRECTIONS:

NOW, WE WILL TRY A DIFFERENT GAME. I AM GOING TO PUT SOME THINGS ON THE TABLE. WATCH CAREFULLY.

Place the objects in a line, from your left to right, on the table as listed. First trial, use Group 1, second trial Group 2, and so on.

LOOK AT THEM VERY CAREFULLY.

Make sure the child attends to the objects.

I AM GOING TO TAKE ONE OF THESE AWAY (point to each object separately) WHILE YOU HAVE YOUR EYES CLOSED.

VISUAL MEMORY - OBJECTS (continued)

NOW CLOSE YOUR EYES TIGHTLY AND KEEP THEM CLOSED UNTIL I TELL YOU TO OPEN THEM.

Remove the underlined object from the table and place it in the box under the table. Close objects up so that spacing is even.

OPEN YOUR EYES. WHAT DID I TAKE AWAY?

If the child is correct, mark under First Recall on score sheet and proceed with the next group. If no reply, or incorrect, then say:

WHAT ELSE WAS THERE BEFORE YOU CLOSED YOUR EYES THAT ISN'T THERE NOW? (pause)

If correct, mark under Second Recall on score sheet and proceed with the next group. If no reply, then say:

DO YOU REMEMBER WHAT I TOOK AWAY?

If the child is correct this time, mark under Third Recall and proceed with the next group. If the child cannot recall, then proceed as follows:

I'LL PUT SOME OTHER THINGS ON THE TABLE.

Move objects already on the table to the side, and put the new set on the table in a line as listed. The object that had been removed is underlined on the score sheet.

WHICH ONE OF THESE WAS ON THE TABLE BEFORE YOU CLOSED YOUR EYES?

If the child cannot recognize the object included in the new set, tell and show him which object it was. Tell the child:

LET'S TRY ONE OTHER GAME LIKE THIS.

Continue through all five groups with above directions.

VISUAL MEMORY - OBJECTS (continued)

After testing had begun, it became apparent that the scoring instructions for the Visual Memory tests were being misinterpreted by some testers, and the following memorandum was sent to all testers.

Memorandum to Testers:

The instructions for scoring the Visual Memory subtests seem to have led to some confusion for testers. We have decided to modify the instructions somewhat. Please begin using these new instructions on all tests beginning Monday, May 15. Prior to Monday May 15 continue using the old instructions. Also please write down how you have administered and recorded responses to these tests prior to May 15 so that we will know how each tester has interpreted the instructions. Please send this statement to us with your next time sheet.

Instructions for Visual Memory tests to be used beginning May 15:

Original Sets - For each item, a child will be given all three attempts to recall what is missing on the Original Sets, unless he gives the correct answer on the first, or on the second trial. (Notice that the child is given another chance if he gives no response and also if he gives an incorrect response.) Do not check anything in the "Correct" column for the recall responses. The Correct and Incorrect columns are to be used only for New Set. Each time the child is given a chance to recall, record something in the appropriate column. If the child names something that he thinks is missing, write this in the appropriate column. If he says he doesn't know, write DK. If he makes no attempt, write NA.

New Sets - If the child has not given the correct answer on any of the three trials for an item, give him the New Set. If he gives a correct response for the new set, write the response in the "Correct" column for the new set. If he gives an incorrect response for the new set, write the response in the "Incorrect" column for the new set. If he gives a response of "don't know" or makes no attempt, check the last column.

Visual Memory - Objects

Item No.	Original Set	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	No Attempt
11.	Car Horse Block Pencil				Button Clock Horse Spoon			
12.	Spoon Airplane Crayon Key				Key Car Box Pencil			
13.	Book Apple Clock Box				Crayon Block Button Clock			
14.	Car Book Airplane Block				Apple Key Car Horse			
15.	Pencil Key Crayon Button				Clock Block Book Crayon			

Tester's Scoring Grid

VISUAL MEMORY - OBJECTS (continued)

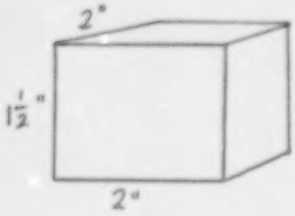
The score for this scale is the number of items answered correctly on the first recall. A weighted score had also been constructed by assigning the following numbers: 5 - correct on first recall, 4 - correct on second recall, 3 - correct on third recall, 1 - correct on new set, and 0 - incorrect or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

Weighted scores were assigned only if the children had been given additional chances to recall both when they failed to respond and when they gave incorrect responses. As noted in the "Memorandum to Testers" reproduced as part of the test instructions, testers had been reminded of the correct procedure and had been asked to indicate what their procedure had been before the memorandum had been sent. The information sent by the tester was then used to assign a rating to each Visual Memory test showing whether the correct procedure had been used. Only the correct tests were then used in computing weighted scores.

VOCABULARY (INDIVIDUAL)

TEST MATERIALS:

12 wooden blocks



2 sheets of 11" × 14" white construction paper

1 yarn ring - a piece of yarn about two feet long with its ends tied together

TEST DIRECTIONS:

Keep blocks in box on the floor to tester's left.

If blocks are needed on the table, keep them piled to your right.

Build all sets which you must construct to your right. When not in use, remove blocks from the table.

Continue through all items of the Vocabulary Assessment whether or not there are three errors.

Vocabulary	Materials	Directions
Above	1 block	Hand the child 1 block. CAN YOU HOLD THE BLOCK ABOVE YOU? If the child does not respond, say: CAN YOU HOLD THAT BLOCK ABOVE YOUR HEAD?

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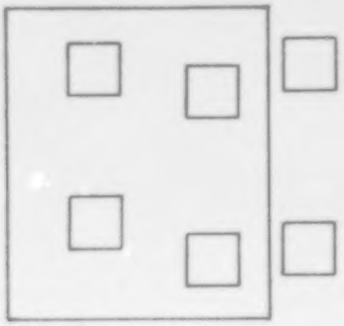
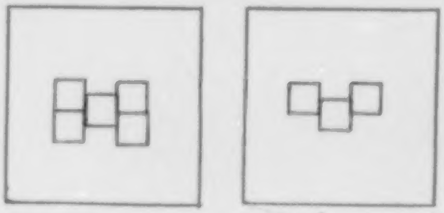
VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
Bottom	12 blocks 1 sheet of construction paper	Hand child 4 blocks. WILL YOU BUILD A TOWER ON THE PAPER WITH THESE BLOCKS? If the child does not start, say: STACK THEM UP LIKE THIS. Start stacking blocks. Stack 2 and tell child: YOU GO AHEAD AND PUT THE BLOCKS ON THE TOWER. If the child has difficulty, don't push him; help him build the tower. When the tower is built, say: CAN YOU TOUCH THE BOTTOM BLOCK IN THE TOWER? Leave tower standing, and say: NOW I AM GOING TO BUILD 2 MORE TOWERS. Build 2 more 4-block towers in a row on the paper next to the child's tower with a 3-inch separation between each 2.
Between		WHICH IS THE TOWER BETWEEN THE OTHERS?
Each		CAN YOU TOUCH EACH TOWER?

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
Remove		ALL RIGHT, NOW I WANT YOU TO REMOVE THE BLOCKS FROM THE PAPER.
Set	1 sheet of construction paper	Put all blocks in a heap at the side of the table to your right. Have your pen or pencil and paper on the table. Place the sheet of construction paper in front of the child. NOW, I WANT YOU TO MAKE A SET HERE ON THE PAPER. Point to construction paper. Any collection of objects - blocks, pencils, etc., placed on the paper is acceptable. If the child does not respond, say: PUT A SET OF THESE OBJECTS (pointing to blocks,etc.), ON THIS PAPER (pointing to sheet of paper).
Subset (bl.)	6 blocks 1 sheet of construction paper	Set up the blocks with 4 blocks placed on the construction paper and 2 blocks near the paper but not on it, as follows: 

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		HERE IS A SET OF BLOCKS. HAND ME THE SUBSET OF BLOCKS WHICH IS OFF THE PAPER. (pause) HAND ME THE SUBSET OF BLOCKS WHICH IS NOT ON THE PAPER.
More than	2 sheets of construction paper 12 blocks	Place 2 pieces of construction paper, with 3 inches between the 2 sheets, in front of the child. HERE ARE 2 SHEETS OF PAPER. I AM GOING TO PUT SOME BLOCKS ON THIS SHEET OF PAPER. Place 3 blocks on sheet to your right. YOU PUT MORE BLOCKS ON YOUR PAPER (pointing to empty sheet) THAN I PUT ON THIS (pointing to your sheet). If the child cannot do this task, place 5 blocks on the empty paper and say: NOW, WHICH PAPER HAS MORE BLOCKS ON IT THAN ON THE OTHER PAPER? 

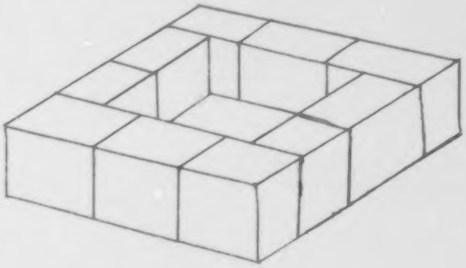
VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		If child does not respond, say: WHICH OF THESE PAPERS (pointing to the 2 sheets) HAS MORE BLOCKS ON IT?
As many as	2 sheets of construction paper 12 blocks	Leave the 2 pieces of paper in front of child. Have all the blocks heaped at the side of the table. Place 4 blocks on the paper to your right. I AM PUTTING SOME BLOCKS ON THIS PAPER. YOU PUT AS MANY BLOCKS ON THIS PAPER (pointing to empty sheet) AS I HAVE PUT ON THIS PAPER (pointing to the sheet with blocks on it).
Fewer than	2 sheets of construction paper 12 blocks	Leave the 2 sheets of paper in front of the child. Have all the blocks heaped at the side of the table. Place 5 blocks on the paper to your right. I HAVE A SET OF BLOCKS ON THIS PAPER (pointing to the paper with blocks). YOU PUT A SET WITH FEWER BLOCKS THAN THIS (again pointing to paper with blocks) HERE (pointing to empty sheet). If child does not respond, say: PUT FEWER BLOCKS ON THIS PAPER THAN I HAVE PUT ON THIS PAPER.

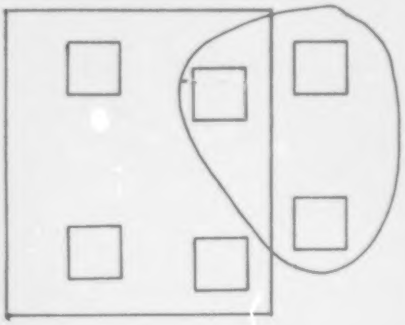
VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		If the child still cannot do the task, score as "Not Attempted" and place 3 blocks on the empty sheet.
Join		NOW, JOIN THESE TWO SETS OF BLOCKS. If the child does not respond, say: CAN YOU JOIN THIS SET OF BLOCKS (pointing to blocks on paper to your left) TO THIS SET OF BLOCKS (pointing to blocks on paper to your right)?
Side	1 block	Hand child the block. PUT YOUR FINGER ON ONE SIDE OF THE BLOCK. If no response, say: CAN YOU POINT TO ONE SIDE OF THIS BLOCK? Let child keep the block for the next item.
Below	1 block	CAN YOU HOLD THAT BLOCK BELOW YOUR CHIN? If the child does not respond, say: CAN YOU POINT TO YOUR CHIN? If the child cannot correctly point to his chin, hold your hand, palm down, over the table

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		at the height of the child's chin, and say: CAN YOU HOLD THE BLOCK BELOW MY HAND? Let child keep the block for the next item.
Edge	1 block	NOW PUT YOUR FINGER ON AN EDGE OF THE BLOCK. If no response, say: CAN YOU POINT TO AN EDGE OF THE BLOCK?
Left	1 block	Place 1 block on the table in front of the child. CAN YOU HOLD THE BLOCK IN YOUR LEFT HAND?
Outside	11 blocks	Make a rectangular-shaped construction, using 10 blocks, in front of the child. 

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
		I AM BUILDING A WALL. CAN YOU PUT THIS BLOCK OUTSIDE THE WALL? (Hand the child 1 block.)
Right	1 block	Place 1 block on the table in front of the child. CAN YOU HOLD THE BLOCK IN YOUR RIGHT HAND?
Subset (yrn)	6 blocks Yarn ring 1 sheet of construction paper	Set up the blocks with 4 blocks placed on the construction paper and 2 blocks placed near the paper but not on it. Show the child the yarn ring and say: THIS IS A YARN RING. Place the yarn ring around one of the blocks on the paper as well as the two blocks not on the paper as follows:  HERE IS A SET OF BLOCKS. HAND ME THE SUBSET OF BLOCKS WHICH IS INSIDE THE YARN RING.

VOCABULARY (INDIVIDUAL) (continued)

Vocabulary	Materials	Directions
Shorter Than	12 blocks	Have the child build a tower with 4 blocks. You build 2 more towers to the right of the child's tower, using 5 blocks for the middle tower, and 3 blocks for the right hand tower. WHICH TOWER IS SHORTER THAN THE OTHERS?

Vocabulary

Item No.	Word	Correct Response	Incorrect Response	No Attempt
99.	Above			
100.	Bottom			
101.	Between			
102.	Each			
103.	Remove			
104.	Set			
105.	Subset (bl.)			
106.	More than			
107.	As many as			
108.	Fewer than			
109.	Join			
110.	Side			

(continued)

VOCABULARY (INDIVIDUAL) (continued)

Item No.	Word	Correct Response	Incorrect Response	No Attempt
111.	Below			
112.	Edge			
113.	Left			
114.	Outside			
115.	Right			
116.	Subset (yrn)			
117.	Shorter than			

Tester's Scoring Grid

EQUIVALENT SETS - OBJECTS

TEST MATERIALS:

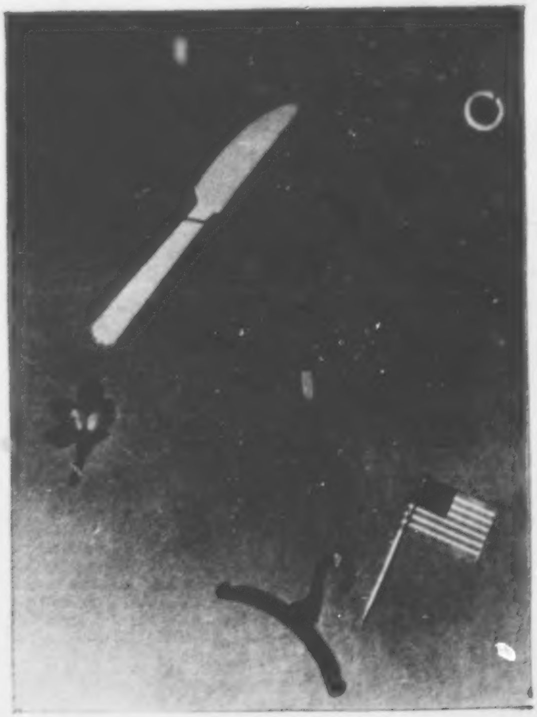
20 buttons - 1/2 inch in diameter, white, plastic

1 sheet of 11" × 14" white construction paper

6 9" × 12" cards made of corrugated cardboard with small, plastic objects stapled to them. The objects are arranged in a symmetric pattern on some cards and in an asymmetric pattern on others. On the back of each card at the top is printed "Equivalent Sets Objects - Top of Card ..." (The cards are numbered 1 through 6 to indicate the order in which they are to be presented to the child.)

The cards are pictured below.

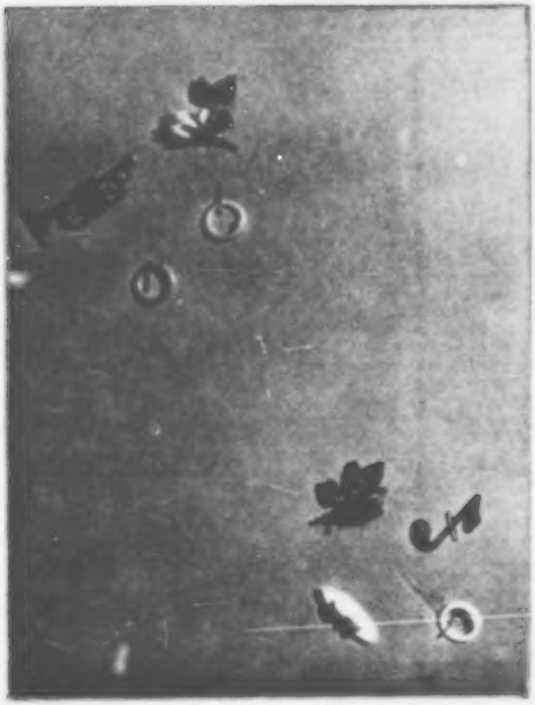
Card 1



EQUIVALENT SETS - OBJECTS (continued)

Card 2

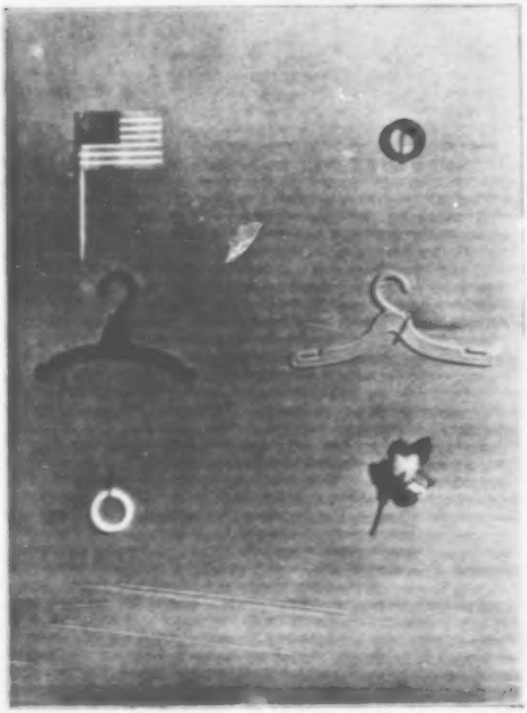
Card 3



EQUIVALENT SETS - OBJECTS (continued)

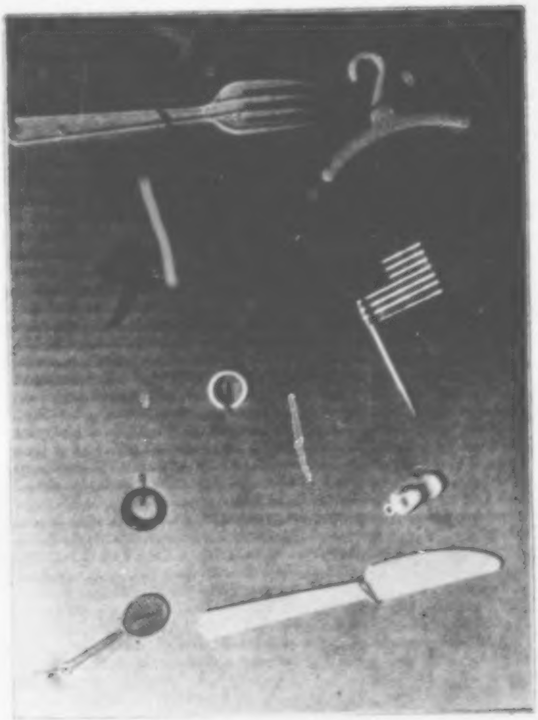
Card 4

Card 5



EQUIVALENT SETS - OBJECTS (continued)

Card 6



TEST DIRECTIONS:

Heap the buttons to the child's left. Place the sheet of construction paper in front of him.

I AM GOING TO SHOW YOU SOME CARDS WITH TOYS ON THEM.

Show the child Card 1. Place it above his sheet of paper and say:

ON THIS SHEET (point to his construction paper) MAKE A SET, WITH THE BUTTON, WHICH IS EQUIVALENT TO THIS SET (pointing to the card).

If the child does not respond, say:

MAKE A SET WITH YOUR BUTTONS ON THIS SHEET (point to construction paper) THAT HAS THE SAME NUMBER OF MEMBERS AS MY SET HAS (point to your number card).

EQUIVALENT SETS - OBJECTS (continued)

Pause after the child finishes, and remove the buttons from his paper to the side of the table each time. Continue with the cards in the order and position as marked on the back of each card, using the same directions as for Card 1.

Have on the table only the card for which the child is constructing an equivalent set. Keep all other cards off the table.

Stop after the child has made three errors in constructing sets.

Note that the correct response (number of toys on the card) is printed in the lower left corner on the back of each card.

Equivalent Sets - Objects

Item No.	Set No.	Correct Response	Incorrect Response	No Attempt
40.	1			
41.	2			
42.	3			
43.	4			
44.	5			
45.	6			

Tester's Scoring Grid

Kindergarten
Spring

Form K-02
Items 46-51

EQUIVALENT SETS - DOTS

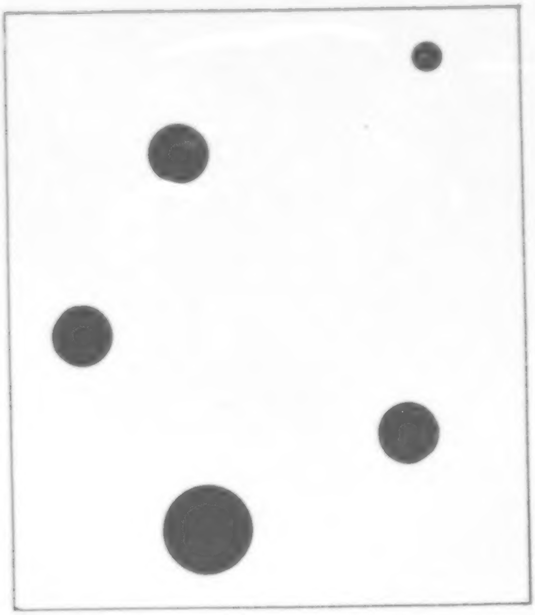
TEST MATERIALS:

20 buttons - 1/2 inch diameter, white, plastic

1 sheet of 11" × 14" white construction paper

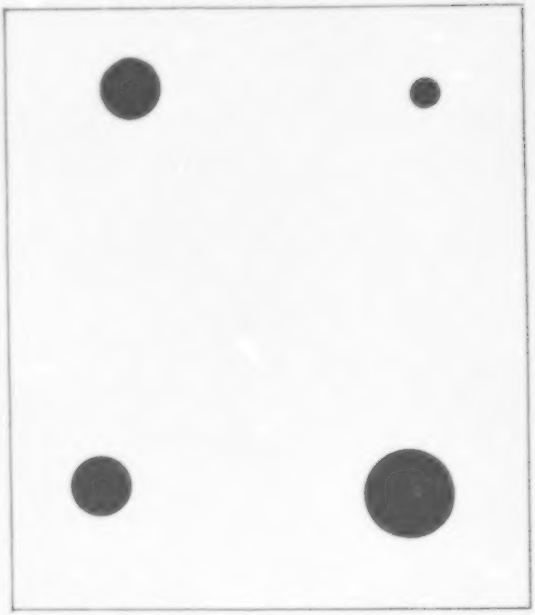
6 6" × 7" cards with varying numbers of dots of varying sizes on each card. On the back of each card at the top is printed "Equivalent Sets - Top of Card ..." (The cards are numbered 1 through 6 to indicate the order in which they are to be presented to the child.)

The cards are reproduced below.

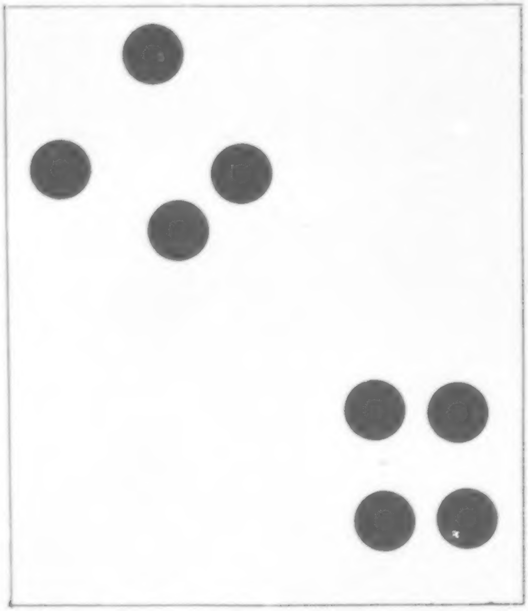


Card 1

EQUIVALENT SETS - DOTS (continued)

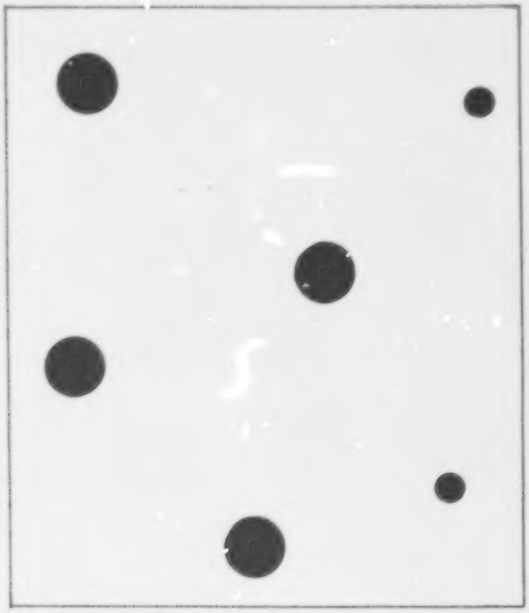


Card 2

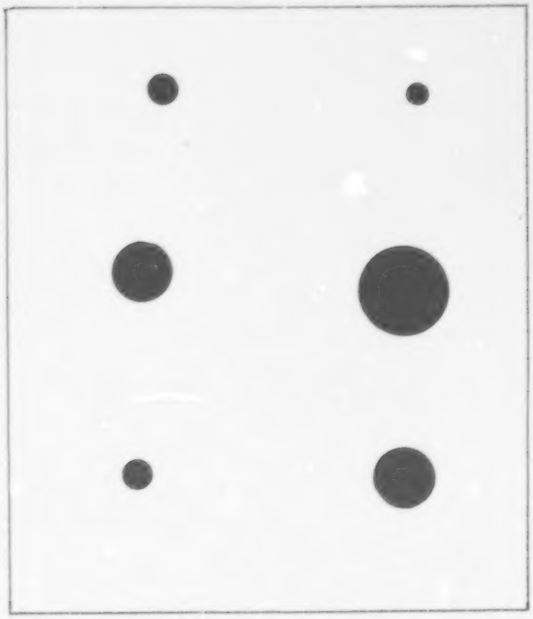


Card 3

EQUIVALENT SETS - DOTS (continued)

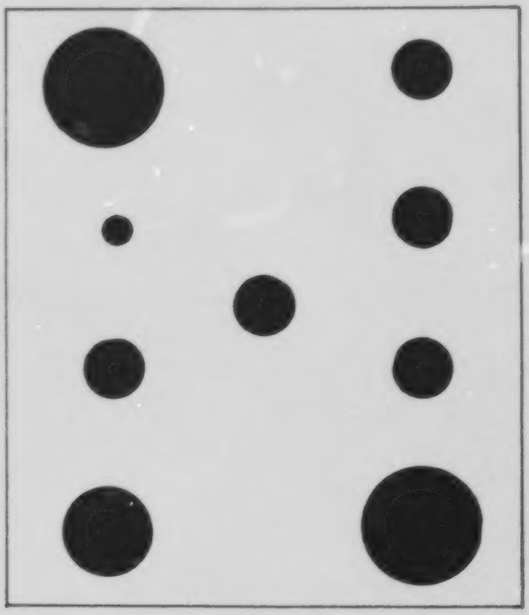


Card 4



Card 5

EQUIVALENT SETS - DOTS (continued)



Card 6

TEST DIRECTIONS:

Heap the buttons to the child's left. Place the sheet of construction paper in front of him.

I AM GOING TO SHOW YOU SOME CARDS WITH DOTS ON THEM.

Show the child Card 1. Place it above his sheet of paper and say:

ON THIS SHEET (point to his construction paper) MAKE A SET, WITH THE BUTTONS, WHICH IS EQUIVALENT TO THIS SET (pointing to the card).

If the child does not respond, say:

MAKE A SET WITH YOUR BUTTONS ON THIS SHEET (point to construction paper) THAT HAS THE SAME NUMBER OF MEMBERS AS MY SET HAS (point to your number card).

EQUIVALENT SETS - DOTS (continued)

Pause after the child finishes, and remove the buttons from his paper to the side of the table each time. Continue with the cards in the order and position as marked on the back of each card, using the same directions as for Card 1.

Have on the table only the card for which the child is constructing an equivalent set. Keep all other cards off the table.

Stop after the child has made three errors in constructing sets.

Note that the correct response (number of dots on the card) is printed in the lower left corner on the back of each card.

Equivalent Sets: Dots

Item No.	Card No.	Correct Response	Incorrect Response	No Attempt
46.	1			
47.	2			
48.	3			
49.	4			
50.	5			
51.	6			

Tester's Scoring Grid

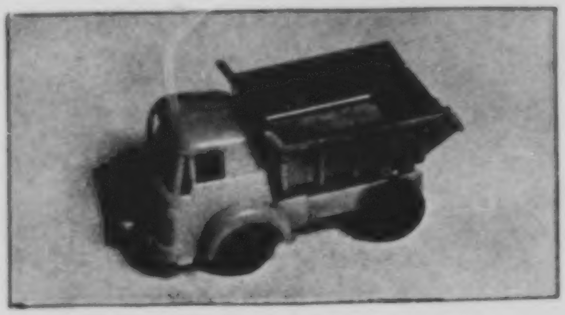
Kindergarten
Spring

Form K-02Y
Items 130-137

ORDINAL NUMBER

TEST MATERIALS:

5 toy trucks - plastic, with load beds large enough to hold five marbles

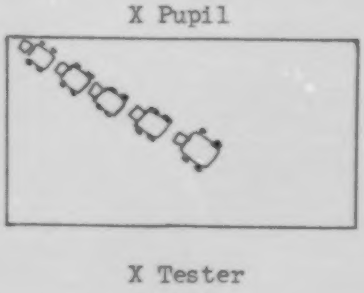


25 marbles

TEST DIRECTIONS:

HERE ARE SOME TRUCKS AND SOME MARBLES. I AM GOING TO LINE UP THE TRUCKS LIKE THIS.

Line up the five trucks with cabs of trucks at an angle facing toward the pupil's right.



ORDINAL NUMBER (continued)

Hand the child a marble. Say:

WOULD YOU PUT THIS MARBLE IN THE FIRST TRUCK?

WOULD YOU PUT THIS MARBLE IN THE THIRD TRUCK?

Then say:

WOULD YOU PUT THIS MARBLE IN THE FIFTH TRUCK?
FOURTH ?
FIRST ?
LAST ?
SECOND ?
FOURTH ?

Mark as correct from whichever end the child chooses as *first*. Use his reference to judge correctness of his following responses.

Continue through this assessment whether or not there are three errors.

Ordinal Number

Item No.		Correct Response	Incorrect Response	No Response
130.	First			
131.	Third			
132.	Fifth			
133.	Fourth			
134.	First			
135.	Last			
136.	Second			
137.	Fourth			

Tester's Scoring Grid

Kindergarten
Spring

Form K-02
Items 59, 61, 66

ORDERING OBJECTS

TEST MATERIALS:

4 buttons - brown, plastic, measuring the following diameters:
1", 7/8", 3/4", 5/8"

5 cubes - styrofoam, measuring the following dimensions:
3", 2 1/2", 2", 1 1/2", 1"

5 drinking straws - plastic, measuring the following lengths:
5 1/4", 4 1/2", 3 1/2", 3", 2 1/2"

TEST DIRECTIONS:

Although only Parts 3a, 4a, and 7a of the following test directions pertain to the Ordering: Objects scale, the complete test is printed here to give the pertinent sections perspective. The specific directions for Ordering: Objects are marked with brackets.

1. Circular Shapes

   a. Hand the child the 4 circular regions in a stack. Have the shapes arranged in the following order before handing them to him: third largest on top, smallest, largest, second to largest on bottom.

      HERE ARE SOME CIRCULAR SHAPES. CAN YOU PUT THESE IN A LINE SO THAT THEY GO FROM THE LARGEST TO THE SMALLEST?

      Record on scoring sheet, item 1a under Ordered.

   b. GIVE ME THE SMALLEST CIRCLE.

      Record on scoring sheet, item 1b under Handed.

ORDERING OBJECTS (continued)

2. Triangular Shapes

Hand the child the 4 triangular regions in a stack. Have the shapes arranged in the following order before handing them to him: second to largest on top, largest, smallest, third to largest on bottom.

HERE ARE SOME TRIANGULAR SHAPES. CAN YOU PUT THESE IN A LINE SO THEY GO FROM THE SMALLEST TO THE LARGEST?

Record on scoring sheet, item 2 under Ordered.

3. Buttons

a. Place the 4 buttons in a pile in front of the child.

HERE ARE SOME BUTTONS OF DIFFERENT SIZES. PUT THEM IN A LINE FROM THE SMALLEST TO THE LARGEST.

Record on scoring sheet, item 3a under Ordered.

b. NOW GIVE ME THE SMALLEST BUTTON.

Record on scoring sheet, item 3b under Handed.

4. Blocks

a. Place the 5 styrofoam blocks in a heap in front of the child.

HERE ARE SOME BLOCKS. PUT THEM IN A LINE SO THEY GO FROM THE LARGEST TO THE SMALLEST.

Record on scoring sheet, item 4a under Ordered.

b. GIVE ME THE LARGEST BLOCK.

Record on scoring sheet, item 4b under Handed.

5. Drawings - Buttons

Hand the child the cards with drawings of buttons in a stack in the following order: third largest on top, smallest, largest, and second largest on bottom.

ORDERING OBJECTS (continued

HERE ARE SOME CARDS WITH PICTURES OF BUTTONS OF DIFFERENT SIZES ON THEM. PUT THEM IN A LINE FROM THE SMALLEST TO THE LARGEST.

Record on scoring sheet, item 5 under Ordered.

6. Drawings - Cars

   a. Hand the child the 4 cards with drawings of cars in a stack in the following order: second to largest on top, next to smallest, largest, and smallest on the bottom.

   HERE ARE SOME CARDS WITH PICTURES OF CARS OF DIFFERENT SIZES. PARK THEM IN A LINE SO THEY GO FROM THE LARGEST TO THE SMALLEST.

   Record on scoring sheet, item 6a under Ordered.

   b. GIVE ME THE PICTURE OF THE LARGEST CAR.

   Record on scoring sheet, item 6b under Handed.

7. Plastic Straws

   a. Hand the child the 5 straws in a bundle (with rubber band removed).

   HERE ARE SOME STRAWS OF DIFFERENT LENGTHS. PUT THESE IN A LINE SO THEY GO FROM THE LONGEST TO THE SHORTEST.

   In scoring this item, note that the child's placement of the straws in either a vertical or horizontal position to himself is acceptable as long as the straws are correctly ordered.

   Record on scoring sheet, item 7a.

   b. NOW HAND ME THE SHORTEST STRAW.

   Record on scoring sheet, item 7b.

8. Rectangular Shapes

   a. Hand the child the 5 rectangular shapes in a stack in the following order: next to smallest on top, third to largest, smallest, largest, second to largest on the bottom.

ORDERING OBJECTS (continued)

HERE ARE SOME RECTANGULAR SHAPES. CAN YOU PUT THESE IN A LINE FROM THE LONGEST TO THE SHORTEST?

In scoring this item, note that the child's placement of the rectangular shapes in either a vertical or horizontal position to himself is acceptable as long as the shapes are correctly ordered.

Record on scoring sheet, item 8a.

b. NOW HAND ME THE LONGEST RECTANGULAR SHAPE.

Record on scoring sheet, item 8b.

9. Drawings - Rectangles

Hand the child the 5 cards with drawings of rectangles in a stack. Have them arranged in the following order before handing them to him: drawing of next to smallest rectangle on top, third to largest, smallest, largest, and drawing of second to largest rectangle on the bottom.

HERE ARE SOME CARDS WITH DRAWINGS OF RECTANGLES ON THEM. PUT THE CARDS IN A LINE GOING FROM THE DRAWING OF THE LONGEST RECTANGLE ON ONE END TO THE DRAWING OF THE SHORTEST RECTANGLE AT THE OTHER END.

As in scoring 7a and 8a, vertical or horizontal orientation is irrelevant.

Record on scoring sheet, item 9.

ORDERING OBJECTS (continued)

Ordering - Objects

Item No.	Ordered:		Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle-size items or some other partially correct attempt)	Randomly ordered	No attempt
59.	3a	Buttons				
61.	4a	Blocks				
66.	7a	Plastic Straws				

Tester's Scoring Grid

The score for this scale is the number of items ordered correctly. A weighted score had also been constructed by assigning the following numbers: 2 - ordered correctly, 1 - ends ordered correctly, and 0 - randomly ordered or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

ORDERING PICTURES

TEST MATERIALS:

3 sets of cards with drawings

Set 1: four 3" × 3" cards - a drawing of one button on each card with the following diameters: 1 1/2", 1", 7/8", 11/16"

Set 2: four 3" × 3" cards - a drawing of one car on each card with the following lengths: 2 1/2", 1 5/8", 1 1/8", 13/16"

Set 3: five 3" × 5" cards - a drawing of one rectangle on each card with the following dimensions: 4 1/2" × 3/4", 3 3/4" × 3/4", 3" × 3/4", 2 1/4" × 3/4", 1 1/2" × 3/4"

TEST DIRECTIONS:

Although only Parts 5, 6a, and 9 of the following test directions pertain to the Ordering: Pictures scale, the complete test is printed here to give the pertinent sections perspective. The specific directions for Ordering: Pictures are marked with brackets.

1. Circular Shapes

   a. Hand the child the 4 circular regions in a stack. Have the shapes arranged in the following order before handing them to him: third largest on top, smallest, largest, second to largest on bottom.

      HERE ARE SOME CIRCULAR SHAPES. CAN YOU PUT THESE IN A LINE SO THAT THEY GO FROM THE LARGEST TO THE SMALLEST?

      Record on scoring sheet, item 1a under Ordered.

   b. GIVE ME THE SMALLEST CIRCLE.

ORDERING PICTURES (continued)

Record on scoring sheet, item 1b under Handed.

2. Triangular Shapes

Hand the child the 4 triangular regions in a stack. Have the shapes arranged in the following order before handing them to him: second to largest on top, largest, smallest, third to largest on bottom.

HERE ARE SOME TRIANGULAR SHAPES. CAN YOU PUT THESE IN A LINE SO THEY GO FROM THE SMALLEST TO THE LARGEST?

Record on scoring sheet, item 2 under Ordered.

3. Buttons

a. Place the 4 buttons in a pile in front of the child.

HERE ARE SOME BUTTONS OF DIFFERENT SIZES. PUT THEM IN A LINE FROM THE SMALLEST TO THE LARGEST.

Record on scoring sheet, item 3a under Ordered.

b. NOW GIVE ME THE SMALLEST BUTTON.

Record on scoring sheet, item 3b under Handed.

4. Blocks

a. Place the 5 styrofoam blocks in a heap in front of the child.

HERE ARE SOME BLOCKS. PUT THEM IN A LINE SO THEY GO FROM THE LARGEST TO THE SMALLEST.

Record on scoring sheet, item 4a under Ordered.

b. GIVE ME THE LARGEST BLOCK.

Record on scoring sheet, item 4b under Handed.

ORDERING PICTURES (continued)

5. Drawings - Buttons

Hand the child the cards with drawings of buttons in a stack in the following order: third largest on top, smallest, largest, and second largest on bottom.

HERE ARE SOME CARDS WITH PICTURES OF BUTTONS OF DIFFERENT SIZES ON THEM. PUT THEM IN A LINE FROM THE SMALLEST TO THE LARGEST.

Record on scoring sheet, item 5 under Ordered.

6. Drawings - Cars

a. Hand the child the 4 cards with drawings of cars in a stack in the following order: second to largest on top, next to smallest, largest, and smallest on the bottom.

HERE ARE SOME CARDS WITH PICTURES OF CARS OF DIFFERENT SIZES. PARK THEM IN A LINE SO THEY GO FROM THE LARGEST TO THE SMALLEST.

Record on scoring sheet, item 6a under Ordered.

b. GIVE ME THE PICTURE OF THE LARGEST CAR.

Record on scoring sheet, item 6b under Handed.

7. Plastic Straws

a. Hand the child the 5 straws in a bundle (with rubber band removed).

HERE ARE SOME STRAWS OF DIFFERENT LENGTHS. PUT THESE IN A LINE SO THEY GO FROM THE LONGEST TO THE SHORTEST.

In scoring this item, note that the child's placement of the straws in either a vertical or horizontal position to himself is acceptable as long as the straws are correctly ordered.

Record on scoring sheet, item 7a.

ORDERING PICTURES (continued)

b. NOW HAND ME THE SHORTEST STRAW.

Record on scoring sheet, item 7b.

8. Rectangular Shapes

a. Hand the child the 5 rectangular shapes in a stack in the following order: next to smallest on top, third to largest, smallest, largest, second to largest on the bottom.

HERE ARE SOME RECTANGULAR SHAPES. CAN YOU PUT THESE IN A LINE FROM THE LONGEST TO THE SHORTEST?

In scoring this item, note that the child's placement of the rectangular shapes in either a vertical or horizontal position to himself is acceptable as long as the shapes are correctly ordered.

Record on scoring sheet, item 8a.

b. NOW HAND ME THE LONGEST RECTANGULAR SHAPE.

Record on scoring sheet, item 8b.

9. Drawings - Rectangles

Hand the child the 5 cards with drawings of rectangles in a stack. Have them arranged in the following order before handing them to him: drawing of next to smallest rectangle on top, third to largest, smallest, largest, and drawing of second to largest rectangle on the bottom.

HERE ARE SOME CARDS WITH DRAWINGS OF RECTANGLES ON THEM. PUT THE CARDS IN A LINE GOING FROM THE DRAWING OF THE LONGEST RECTANGLE ON ONE END TO THE DRAWING OF THE SHORTEST RECTANGLE AT THE OTHER END.

As in scoring 7a and 8a, vertical or horizontal orientation is irrelevant.

Record on scoring sheet, item 9.

ORDERING PICTURES (continued)

Ordering - Pictures

Item No.	Ordered:		Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle-size items or some other partially correct attempt)	Randomly ordered	No Attempt
63.	5	Drawings-Buttons				
64.	6a	Drawings-Cars				
70.	9	Drawings-Rectangles				

Tester's Scoring Grid

The score for this scale is the number of items ordered correctly. A weighted score had also been constructed by assigning the following numbers: 2 - ordered correctly, 1 - ends ordered correctly, and 0 - randomly ordered or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

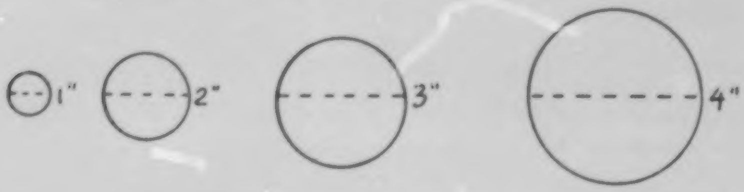
Kindergarten
Spring

Form K-02
Items 56, 58, 68

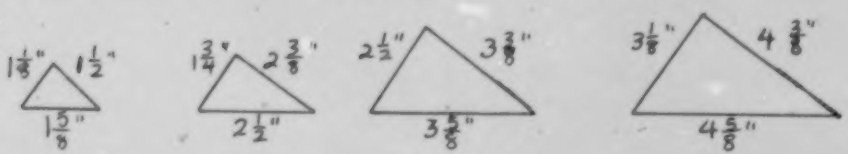
ORDERING GEOMETRIC SHAPES

TEST MATERIALS:

4 circles - red, cut from light-weight cardboard

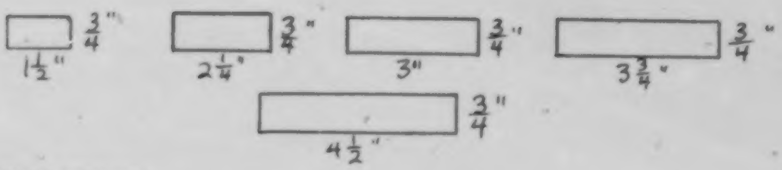


4 triangles - red, cut from light-weight cardboard



1 1/8"
1 1/2"
1 5/8"
1 3/4"
2 3/8"
2 1/2"
2 1/2"
3 3/8"
3 5/8"
3 1/8"
4 3/8"
4 5/8"

5 rectangles - red, cut from light-weight cardboard



3/4"
1 1/2"
3/4"
2 1/4"
3/4"
3"
3/4"
3 3/4"
3/4"
4 1/2"

TEST DIRECTIONS:

Although only Parts 1a, 2, and 8a of the following test directions pertain to the Ordering: Geometric Shapes scale, the complete test is printed here to give the pertinent sections perspective. The specific directions for Ordering: Geometric Shapes are marked with brackets.

ORDERING GEOMETRIC SHAPES (continued)

1. Circular Shapes

   a. Hand the child the 4 circular regions in a stack. Have the shapes arranged in the following order before handing them to him: third largest on top, smallest, largest, second to largest on bottom.

      HERE ARE SOME CIRCULAR SHAPES. CAN YOU PUT THESE IN A LINE SO THAT THEY GO FROM THE LARGEST TO THE SMALLEST?

      Record on scoring sheet, item 1a under Ordered.

   b. GIVE ME THE SMALLEST CIRCLE.

      Record on scoring sheet, item 1b under Handed.

2. Triangular Shapes

   Hand the child the 4 triangular regions in a stack. Have the shapes arranged in the following order before handing them to him: second to largest on top, largest, smallest, third to largest on bottom.

   HERE ARE SOME TRIANGULAR SHAPES. CAN YOU PUT THESE IN A LINE SO THEY GO FROM THE SMALLEST TO THE LARGEST?

   Record on scoring sheet, item 2 under Ordered.

3. Buttons

   a. Place the 4 buttons in a pile in front of the child.

      HERE ARE SOME BUTTONS OF DIFFERENT SIZES. PUT THEM IN A LINE FROM THE SMALLEST TO THE LARGEST.

      Record on scoring sheet, item 3a under Ordered.

   b. NOW GIVE ME THE SMALLEST BUTTON.

      Record on scoring sheet, item 3b under Handed.

ORDERING GEOMETRIC SHAPES (continued)

4. Blocks

   a. Place the 5 styrofoam blocks in a heap in front of the child.

      HERE ARE SOME BLOCKS. PUT THEM IN A LINE SO THEY GO FROM THE LARGEST TO THE SMALLEST.

      Record on scoring sheet, item 4a under Ordered.

   b. GIVE ME THE LARGEST BLOCK.

      Record on scoring sheet, item 4b under Handed.

5. Drawings - Buttons

   Hand the child the cards with drawings of buttons in a stack in the following order: third largest on top, smallest, largest, and second largest on bottom.

   HERE ARE SOME CARDS WITH PICTURES OF BUTTONS OF DIFFERENT SIZES ON THEM. PUT THEM IN A LINE FROM THE SMALLEST TO THE LARGEST.

   Record on scoring sheet, item 5 under Ordered.

6. Drawings - Cars

   a. Hand the child the 4 cards with drawings of cars in a stack in the following order: second to largest on top, next to smallest, largest, and smallest on the bottom.

      HERE ARE SOME CARDS WITH PICTURES OF CARS OF DIFFERENT SIZES. PARK THEM IN A LINE SO THEY GO FROM THE LARGEST TO THE SMALLEST.

      Record on scoring sheet, item 6a under Ordered.

   b. GIVE ME THE PICTURE OF THE LARGEST CAR.

      Record on scoring sheet, item 6b under Handed.

ORDERING GEOMETRIC SHAPES (continued)

7. Plastic Straws

a. Hand the child the 5 straws in a bundle (with rubber band removed).

HERE ARE SOME STRAWS OF DIFFERENT LENGTHS. PUT THESE IN A LINE SO THEY GO FROM THE LONGEST TO THE SHORTEST.

In scoring this item, note that the child's placement of the straws in either a vertical or horizontal position to himself is acceptable as long as the straws are correctly ordered.

Record on scoring sheet, item 7a.

b. NOW HAND ME THE SHORTEST STRAW.

Record on scoring sheet, item 7b.

8. Rectangular Shapes

a. Hand the child the 5 rectangular shapes in a stack in the following order: next to smallest on top, third to largest, smallest, largest, second to largest on the bottom.

HERE ARE SOME RECTANGULAR SHAPES. CAN YOU PUT THESE IN A LINE FROM THE LONGEST TO THE SHORTEST?

In scoring this item, note that the child's placement of the rectangular shapes in either a vertical or horizontal position to himself is acceptable as long as the shapes are correctly ordered.

Record on scoring sheet, item 8a.

b. NOW HAND ME THE LONGEST RECTANGULAR SHAPE.

Record on scoring sheet, item 8b.

9. Drawings - Rectangles

Hand the child the 5 cards with drawings of rectangles in a stack. Have them arranged in the following order before handing them to him: drawing of next to smallest rectangle on top,

ORDERING GEOMETRIC SHAPES (continued)

third to largest, smallest, largest, and drawing of second to largest rectangle on the bottom.

HERE ARE SOME CARDS WITH DRAWINGS OF RECTANGLES ON THEM. PUT THE CARDS IN A LINE GOING FROM THE DRAWING OF THE LONGEST RECTANGLE ON ONE END TO THE DRAWING OF THE SHORTEST RECTANGLE AT THE OTHER END.

As in scoring 7a and 8a, vertical or horizontal orientation is irrelevant.

Record on scoring sheet, item 9.

Ordering: Geometric Shapes

Item No.	Ordered:		Ordered correctly Largest-smallest or Smallest-largest	Ordered with error (ends correct, confusion in middle-size items or some other partially correct attempt)	Randomly ordered	No Attempt
56.	1a	Circular Shapes				
58.	2	Triangular Shapes				
68.	8a	Rectangular Shapes				

Tester's Scoring Grid

The score for this scale is the number of items ordered correctly. A weighted score had also been constructed by assigning the following numbers: 2 - ordered correctly, 1 - ends ordered correctly, and 0 - randomly ordered or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

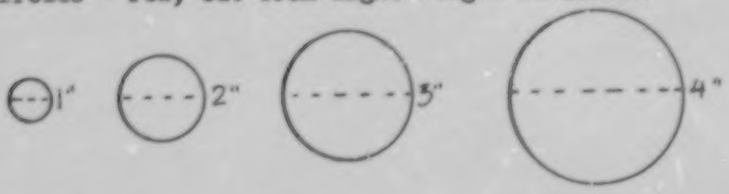
Kindergarten
Spring

Form K-02Y
Items 57, 60, 62, 65, 67, 69, 118-129

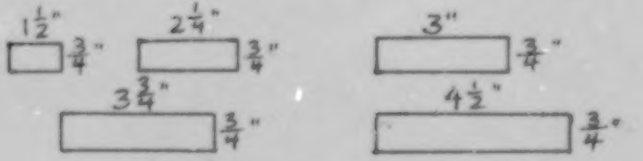
CLASSIFYING

TEST MATERIALS:

4 circles - red, cut from light-weight cardboard



5 rectangles - red, cut from light-weight cardboard



4 buttons - brown, plastic, measuring the following diameters:
1", 7/8", 3/4", 5/8"

5 cubes - styrofoam, measuring the following dimensions:
3", 2 1/2", 2", 1 1/2", 1"

5 drinking straws - plastic, measuring the following lengths:
5 1/4", 4 1/2", 3 1/2", 3", 2 1/2"

4 3" x 3" cards - one car drawn on each card with the following lengths: 2 1/2", 1 5/8", 1 1/8", 13/16"

1 set of plastic knives, forks, and spoons packaged in white No. 10 envelope marked "Classifying - Set XI." There are:

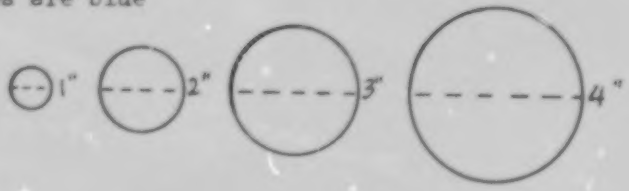
8	spoons	(4 green, 2 blue, 2 yellow)
6	forks	(2 green, 2 blue, 2 yellow)
4	knives	(2 green, 1 blue, 1 yellow)

6 sets of geometric shapes cut from light-weight cardboard of various colors and packaged in six No. 10 envelopes marked "Classifying - Set I" (or Set III, V, VII and IX, VIII, XII)

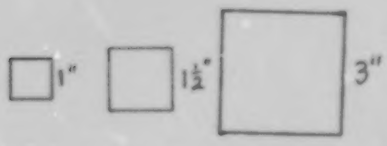
CLASSIFYING (continued)

Set I - all shapes are blue

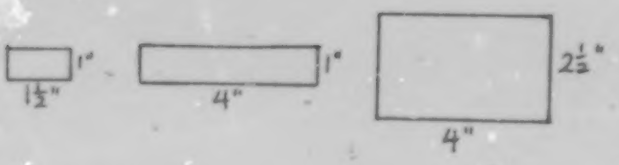
4 circles:



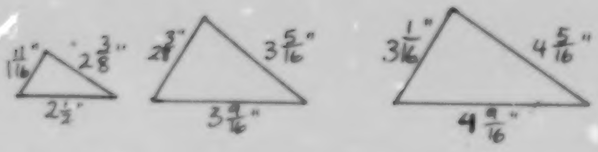
3 squares:



3 rectangles:

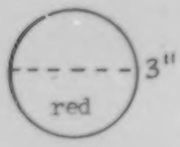


3 triangles:

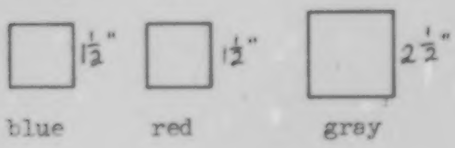

1 11/16"
2 3/8"
2½"
2 3/8"
3 5/16"
3 9/16"
3 1/16"
4 5/16"
4 9/16"

Set III - multi-colored

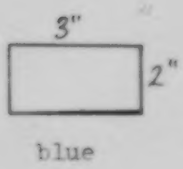
1 circle:



3 squares:

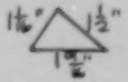

1½"
1½"
2½"
blue
red
gray

1 rectangle:

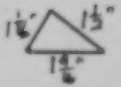


CLASSIFYING (continued)

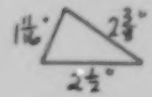
9 triangles:


1 1/16"
1 1/2"
1 9/16"

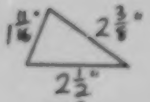
yellow


1 1/16"
1 1/2"
1 9/16"

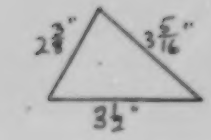
red


1 11/16"
2 3/8"
2 1/2"

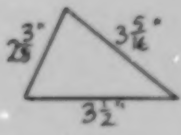
grey


1 11/16"
2 3/8"
2 1/2"

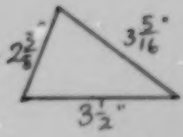
red


2 3/8"
3 5/16"
3 1/2"

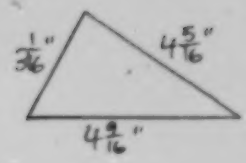
yellow


2 3/8"
3 5/16"
3 1/2"

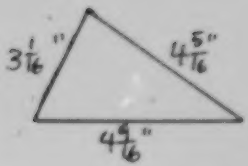
red


2 3/8"
3 5/16"
3 1/2"

grey

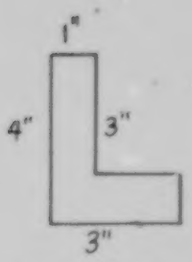

3 1/16"
4 5/16"
4 9/16"

red


3 1/16"
4 5/16"
4 9/16"

blue

1 L-shape:

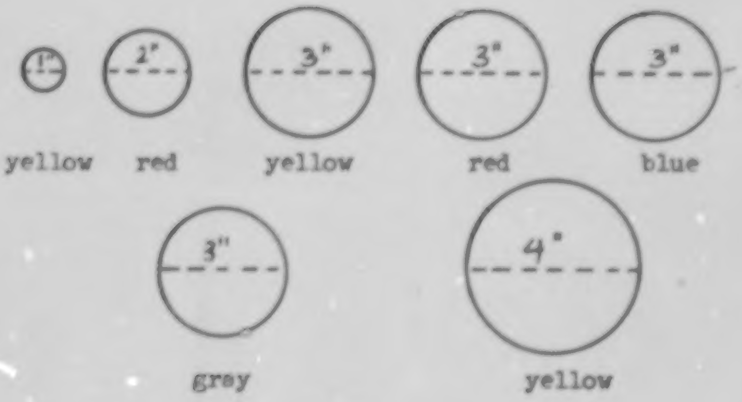


yellow

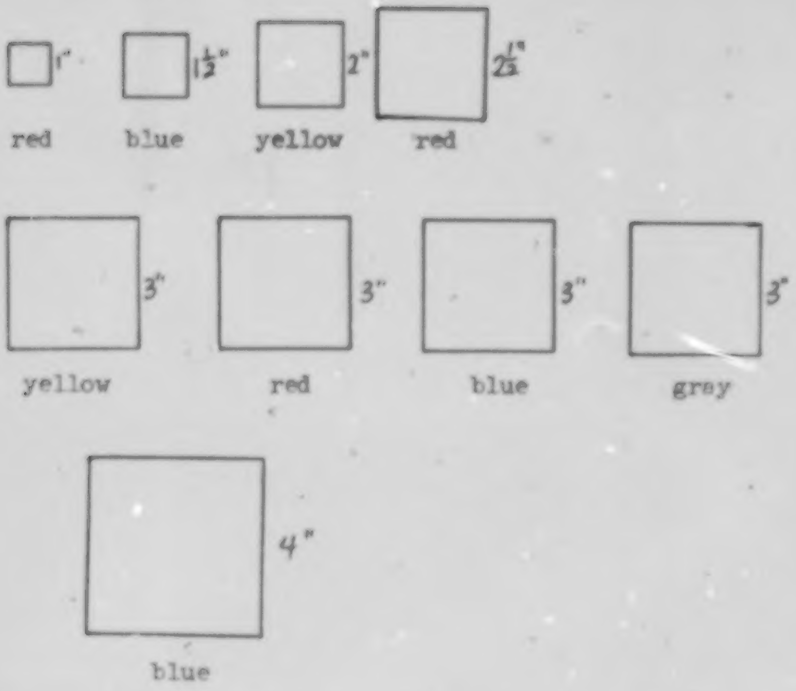
CLASSIFYING (continued)

Set V - multi-colored

7 circles:

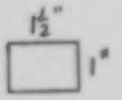

1"
2"
3"
3"
3"
yellow
red
yellow
red
blue
3"
4"
grey
yellow

9 squares:

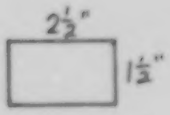

1"
1½"
2"
2½"
red
blue
yellow
red
3"
3"
3"
3"
yellow
red
blue
grey
4"
blue

CLASSIFYING (continued)

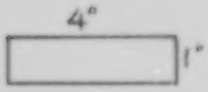
5 rectangles:



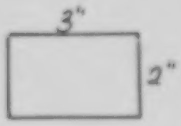
yellow



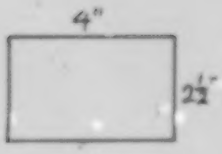
yellow



grey

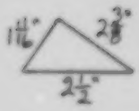


grey

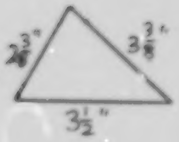


red

2 triangles:

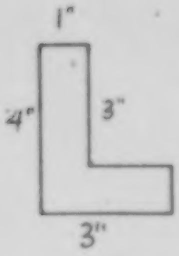

1 11/16"
2 3/8"
2½"

red



yellow

1 L-shape:

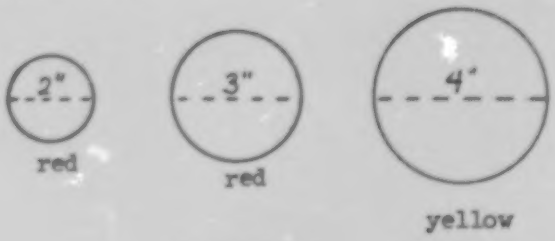


red

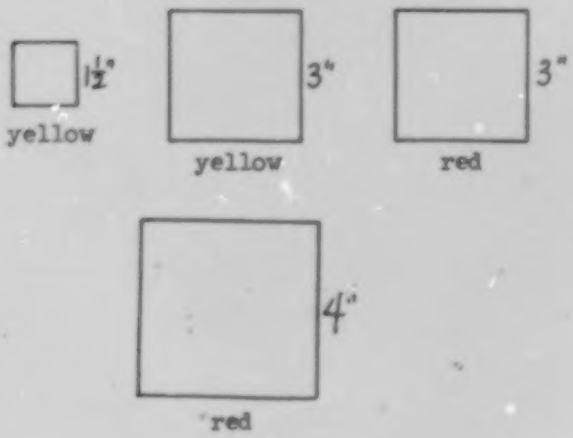
CLASSIFYING (continued)

Set VII and Set IX - multi-colored

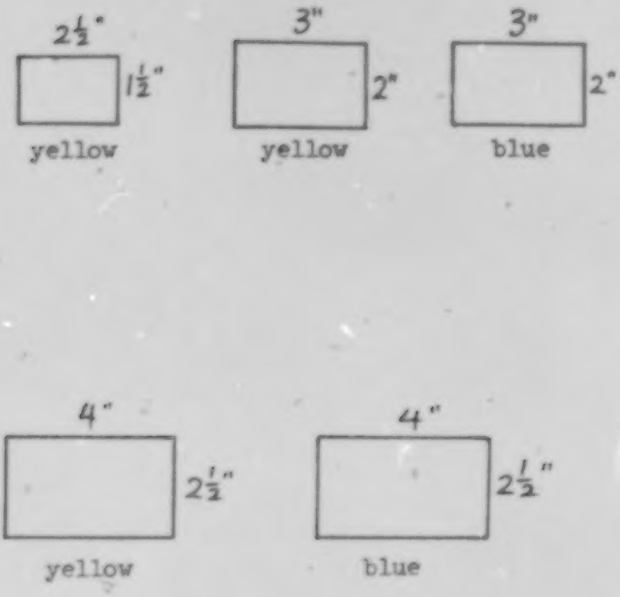
3 circles:


2"
red
3"
red
4"
yellow

4 squares:

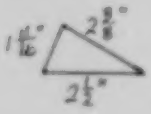

1½"
yellow
3"
yellow
3"
red
4"
red

5 rectangles:

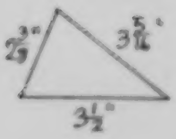

2½"
1½"
yellow
3"
2"
yellow
3"
2"
blue
4"
2½"
yellow
4"
2½"
blue

CLASSIFYING (continued)

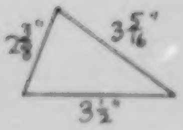
4 triangles:


1 1/16"
2 3/8"
2 1/2"

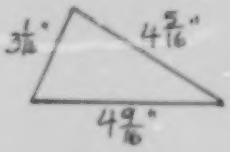
grey


2 3/8"
3 5/16"
3 1/2"

red

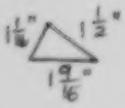

2 3/8"
3 5/16"
3 1/2"

grey


3 1/16"
4 5/16"
4 9/16"

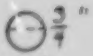
blue

Set VIII - all shapes are blue; exactly the same shapes and in the same sizes as in Set I except another triangle is included.

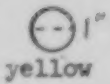

1 1/16"
1 1/2"
1 9/16"

Set XII - multi-colored

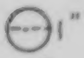
3 circles:



red

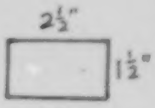


yellow

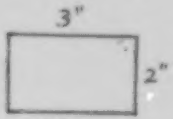


red

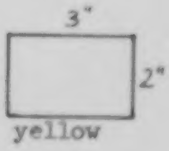
5 rectangles:



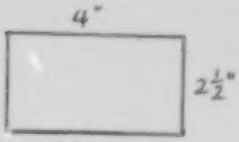
yellow



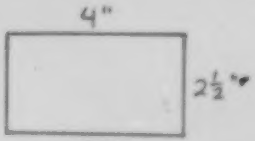
blue



yellow



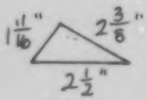
blue



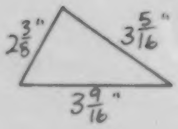
yellow

CLASSIFYING (continued)

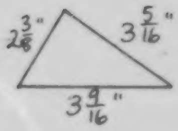
4 triangles:


1 1/16"
2 3/8"
2 1/2"

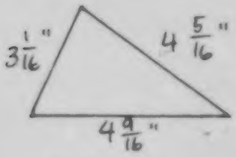
gray


2 3/8"
3 5/16"
3 9/16"

red

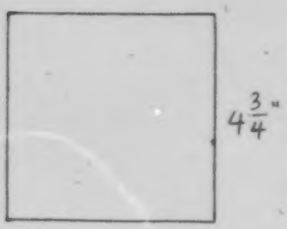

2 3/8"
3 5/16"
3 9/16"

gray

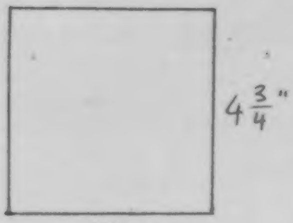

3 1/16"
4 5/16"
4 9/16"

blue

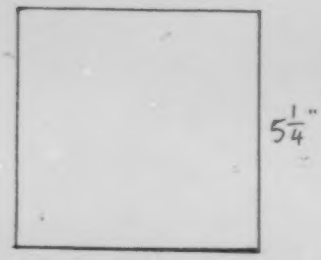
4 squares:



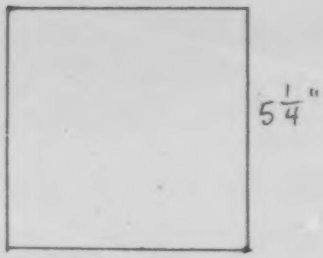
red



yellow



red



yellow

CLASSIFYING (continued)

TEST DIRECTIONS:

The directions for Items 57, 60, 62, 65, 67, and 69 are an integral part of the directions for the Ordering: Objects, Pictures, and Shapes scales and are not reproduced here. Refer to the test directions for either 121, 123, or 126. The pertinent sections are 1b, 3b, 4b, 6b, 7b, and 8b.

The following test directions are for Items 118 through 129.

Set I. Circles

Spread out the geometric shapes of Set I randomly in front of the child so that all are visible.

HERE ARE SOME SHAPES OR REGIONS. FIND ALL THE CIRCLE SHAPES. PUT THEM HERE (pointing to the table at the child's right).

If the child does not respond,

SHOW ME A CIRCULAR SHAPED REGION. (pause) NOW PUT ALL THE SHAPES THAT ARE CIRCLES OVER HERE (pointing to child's right).

Set III. Triangles and Red

Spread out the geometric shapes of Set III randomly in front of the child so that all are visible.

HERE ARE SOME OTHER SHAPES. NOW SHOW ME THE SHAPES THAT ARE BOTH TRIANGLES AND RED.

If the child does not respond, say:

SHOW ME A TRIANGULAR REGION. (pause) NOW PUT ALL THE SHAPES THAT ARE TRIANGLES AND RED OVER HERE (pointing to the table at the child's right).

Set V. Same Size

Spread out the geometric shapes of Set V randomly in front of the child so that all are visible.

CLASSIFYING (continued)

FIND THE SHAPES THAT ARE THE SAME SIZE. PUT THEM OVER HERE (pointing to the child's right).

If no response, say:

CAN YOU FIND SETS OF SHAPES WHICH HAVE MEMBERS ALL THE SAME SIZE?

If the child includes any shapes other than squares or circles or if he includes any square or circle that is the wrong size, check "YES" on the record form and make no further recordings in this section. If "NO" has been checked to show that child has not included any shapes other than circles or squares and no wrong sizes, check one of the four statements that follows on the record blank.

Set VII.

Spread out the shapes of Set VII randomly in front of the child so that all are visible. (The envelope is marked Set VII and Set IX.)

A. HERE ARE SOME SHAPES OR REGIONS.

THERE ARE FOUR DIFFERENT SHAPES IN THE SET.

(Point to one of each shape.)

GIVE ME THE SMALLEST ONE OF EACH DIFFERENT SHAPE.

The child's response is to be classified according to one of the following categories (listed on the score sheet):

Child finds the smallest of each of the four shapes and includes no other size for any shape than the smallest.

Child finds the smallest of each of the three shapes and includes no other size for any shape than the smallest.

Response is incorrect if the child includes other sizes or finds two or fewer of the smallest shapes.

If the child does not respond, check "PROMPTED" on record form and say:

CLASSIFYING (continued)

MAKE A SEPARATE PILE FOR EACH SHAPE. (Point again to one of each shape.)

THEN GIVE ME THE SMALLEST OF EACH SHAPE.

Record as above in the section on the record form to be used after prompting.

Return all the shapes to the random positions within the set of shapes before beginning B.

B. CAN YOU GIVE ME THE SMALLEST RED CIRCLE?

Check "YES" or "NO".

If the child does not respond, check "PROMPTED" and say:

MAKE A SEPARATE PILE FOR ALL THE RED CIRCLES; THEN GIVE ME THE SMALLEST RED CIRCLE.

Check "YES" or "NO" in the section "AFTER PROMPTING".

After completing this part of Set VII, return the red circles to random positions within the set of shapes. Make certain that all shapes are visible.

C. GIVE ME THE LARGEST YELLOW RECTANGLE.

Check "YES" or "NO" on record blank.

If the child does not respond, check "PROMPTED" and say:

MAKE A SEPARATE PILE FOR ALL THE YELLOW RECTANGLES; THEN GIVE ME THE LARGEST YELLOW RECTANGLE.

In the section "AFTER PROMPTING", if the child hands tester a shape(s) check "YES" or "NO".

After completing this part of Set VII, return the yellow rectangles to random places within the set of shapes. Make sure that all are visible.

D. NOW, ARE THERE MORE TRIANGLES OR RED SQUARES?

If the child does not respond, say:

CLASSIFYING (continued)

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE TRIANGLES OR RED SQUARES? (pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

Return removed shapes to random places within the set of shapes, making sure that all shapes are visible, before starting E.

E. NOW, ARE THERE MORE CIRCLES OR BLUE RECTANGLES?

If the child does not respond, say:

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE CIRCLES OR BLUE RECTANGLES? (pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

Set VIII. Triangles

Use shapes of Set VIII.

Spread out the geometric shapes of Set VIII randomly in front of the child so that all are visible.

HERE ARE SOME SHAPES OR REGIONS. FIND ALL THE TRIANGLE SHAPES. PUT THEM HERE (pointing to the table at the child's right).

If the child does not respond, say:

SHOW ME A TRIANGULAR SHAPED REGION. (pause) NOW PUT ALL THE SHAPES THAT ARE TRIANGLES OVER HERE (pointing to child's right).

Set IX.

Use shapes of Set VII. (This set is marked Set VII and Set IX.)

Spread shapes randomly in front of child so that all are visible.

ARE THERE MORE CIRCLES OR SQUARES?

If the child does not respond, say:

CLASSIFYING (continued)

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE CIRCLES OR SQUARES? (pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

Set XI. Set of forks, spoons, and knives:

8 spoons	(4 green, 2 blue, 2 yellow)
6 forks	(2 green, 2 blue, 2 yellow)
4 knives	(2 green, 1 blue, 1 yellow)

Spread them out in front of the child in a random manner.

ARE THERE MORE FORKS OR GREEN SPOONS?

If the child does not respond, ask him to hand you a spoon, and then a fork. If the child fails to do this or is incorrect, identify a spoon and a fork for him and repeat the question.

Set XII.

Use shapes for Set XII. (These are in a small manila envelope.)

ARE THERE MORE CIRCLES OR SQUARES?

If the child does not respond, say:

CAN YOU FIGURE OUT A WAY TO TELL IF THERE ARE MORE CIRCLES OR SQUARES? (pause) YOU MAY MOVE THE SHAPES AROUND OR PILE THEM UP IF YOU WANT TO.

CLASSIFYING (continued)

Classifying

Item No.		Handed:	Correct Response	Incorrect Response	No Attempt
57.	1b	Smallest circle			
60.	3b	Smallest button			
62.	4b	Largest block			
65.	6b	Drawing of largest car			
67.	7b	Shortest straw			
69.	8b	Longest shape			

Tester's Scoring Grid

Item No.

118.

Set I. Circles

Sorted:

4 circles, no other shapes ____
3 circles, no other shapes ____
2 or fewer circles or other shapes included ____
No attempt or "don't know" ____

Tester's Scoring Grid

Item No.

119.

Set III. Triangles and Red

Sorted:

4 red triangles, no other shapes or color ____
3 red triangles, no other shapes or color ____
2 or fewer red triangles or other shapes or colors included ____
No attempt or "don't know" ____

Tester's Scoring Grid

CLASSIFYING (continued)

Item No.

Set V. Same Size

120. Sorted shapes other than circles or squares or sorted circles or squares of wrong size Yes____ No____

Record in next section only if "No" is checked above.

Sorted:

3 or 4 circles and 3 or 4 squares ____

3 or 4 circles or 3 or 4 squares ____

2 or fewer circles and 2 or fewer squares ____

No attempt or "don't know" ____

Tester's Scoring Grid

Item No.

Set VII.

A. Smallest Members

121. 4 smallest shapes, no wrong size ____

3 smallest shapes, no wrong size ____

Included one or more shapes of incorrect size or found 2 or fewer smallest shapes ____

No response or "don't know" ____

Prompted: Yes____ No____

Record only if "Yes" Prompting

After Prompting:

4 smallest shapes, no wrong size ____

3 smallest shapes, no wrong size ____

Included one or more shapes of incorrect size or found 2 or fewer smallest shapes ____

No response or "don't know" ____

CLASSIFYING (continued)

Item No.

122. B. Handed Smallest Red Circle Yes___ No___

Prompted: Yes___ No___

If "Yes" Prompting

After prompting, handed smallest red circle Yes___ No___

No response or "don't know" ___

123. C. Handed Largest Yellow Rectangle Yes___ No___

Prompted: Yes___ No___

If "Yes" Prompting

After prompting, handed largest yellow rectangle Yes___ No___

No response or "don't know" ___

124. D. Triangles or Red Squares

Correct (more triangles) ___

Incorrect (more red squares) ___

No response or "don't know" ___

125. E. Circles, Blue Rectangles

Correct (more circles) ___

Incorrect (more blue rectangles) ___

No response or "don't know" ___

Tester's Scoring Grid

Item No.

126. Set VIII. Triangles

Sorted:

4 triangles, no other shapes ___

3 triangles, no other shapes ___

2 or fewer triangles or other shapes included ___

No attempt or "don't know" ___

Tester's Scoring Grid

CLASSIFYING (continued)

Item No. 127.

Set IX. Circles or Squares

Correct (more squares) ____
Incorrect (more circles) ____
No attempt or "don't know" ____

Tester's Scoring Grid

Item No. 128.

Set XI. Forks, Knives, Spoons

Correct (more forks) ____
Incorrect (more green spoons) ____
No attempt or "don't know" ____

Tester's Scoring Grid

Item No. 129.

Set XII. Circles, Squares

Correct (more squares) ____
Incorrect (more circles) ____
No attempt or "don't know" ____

Tester's Scoring Grid

For Items 118, 119, and 126, a child had to sort out all four of the correct shapes and include no incorrect shapes in order to get a score of "Correct" for the item.

To get a score of "Correct" for Item 120, a child had to have "No" checked in the first section of the scoring grid and must have sorted three or four circles and three or four squares.

To get a score of "Correct" for Item 121, a child had to sort out all four of the smallest shapes and no wrong size either before or after prompting.

Items 122 and 123 were scored correct if "Yes" was checked in either the before or after prompting sections.

CLASSIFYING (continued)

For Items 121, 122, and 123, the original purpose of including the "after prompting" sections had been to create a weighted scale, but not enough data appeared in these sections to permit this. (Fewer than four percent of the subjects had the "Yes" response checked in the "after prompting" sections.)

VISUAL MEMORY - PICTURES

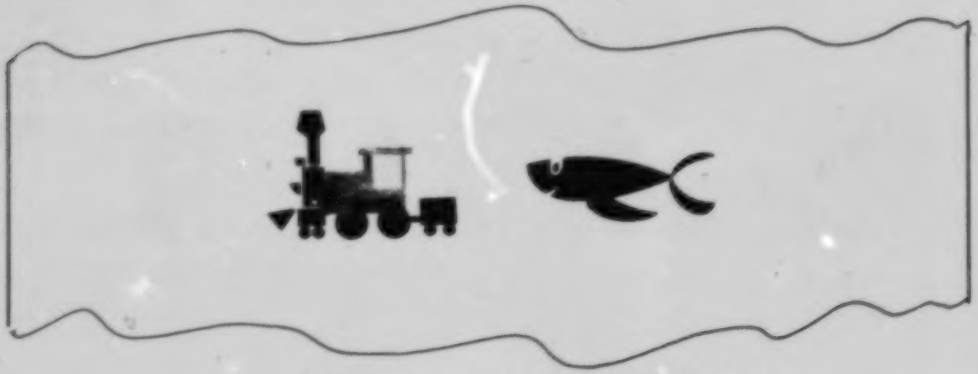
TEST MATERIALS:

5 sets of drawings bound in five 8 1/2" × 11" booklets with three pages of drawings in each. A blank page is inserted between pages on which drawings appear so that the pictures cannot be seen through the paper.

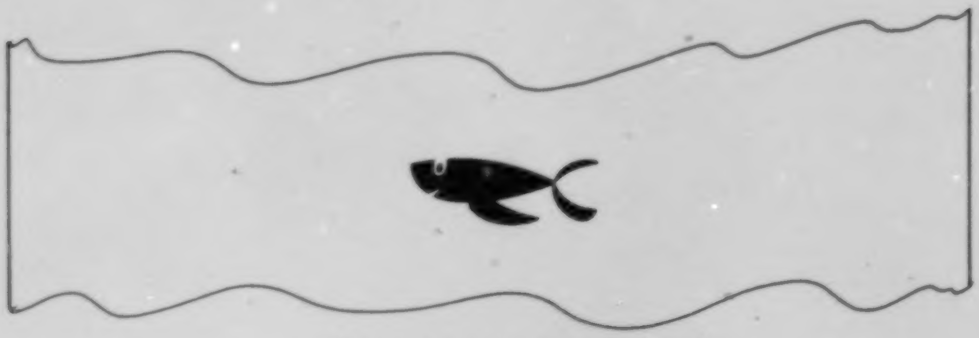
The drawings are reproduced on the following pages.

VISUAL MEMORY - PICTURES (continued)

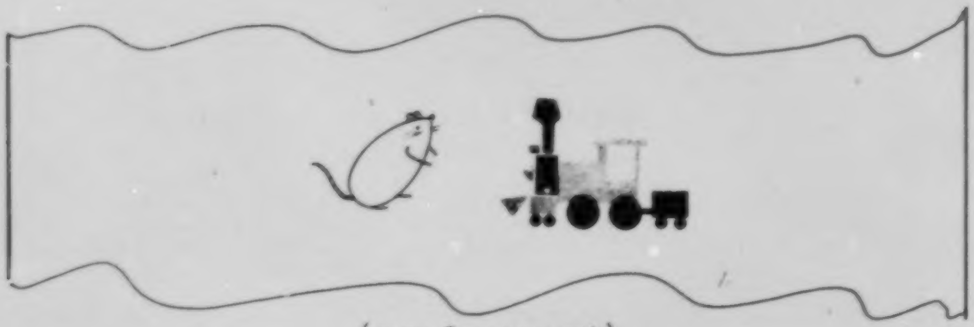
Practice Set



(page 1 - original pictures)



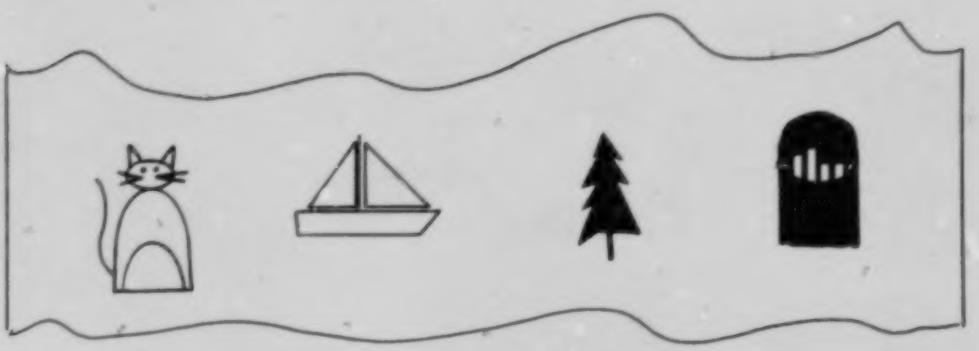
(page 2 - picture removed)



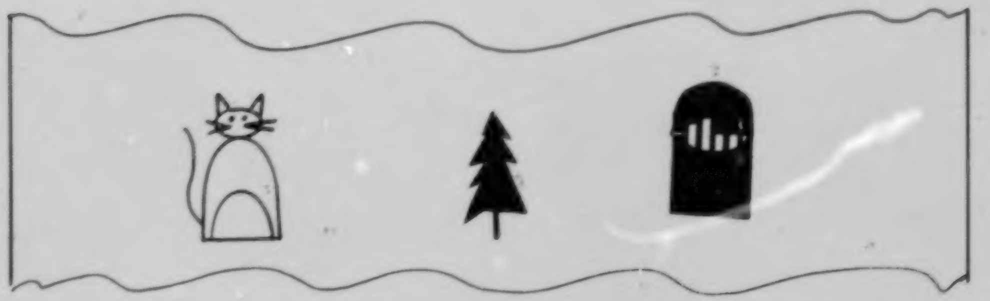
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

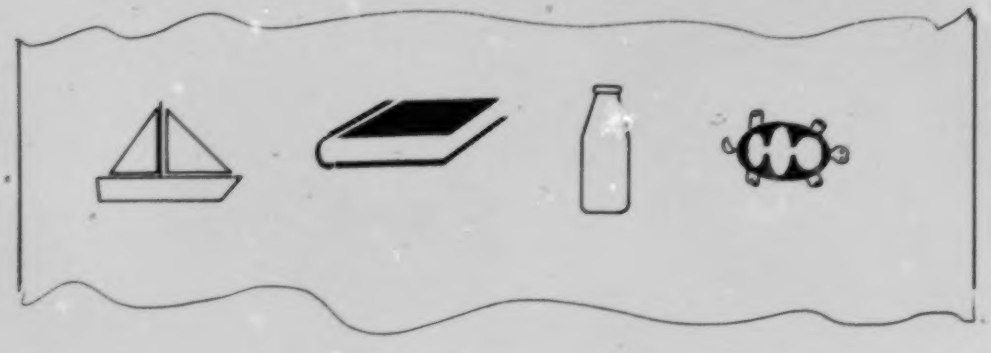
Set I



(page 1 - original pictures)



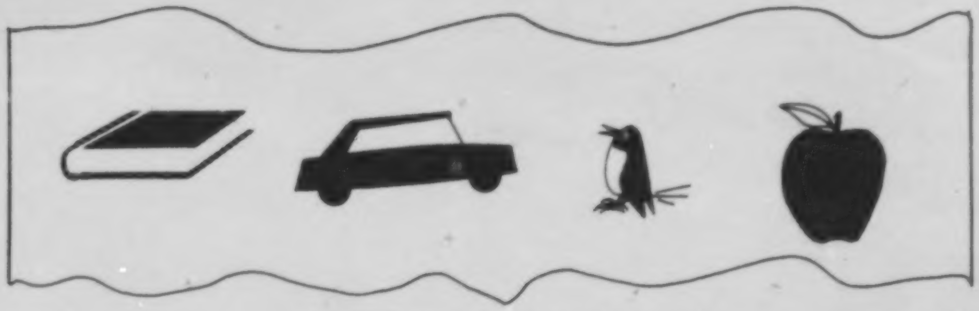
(page 2 - picture removed)



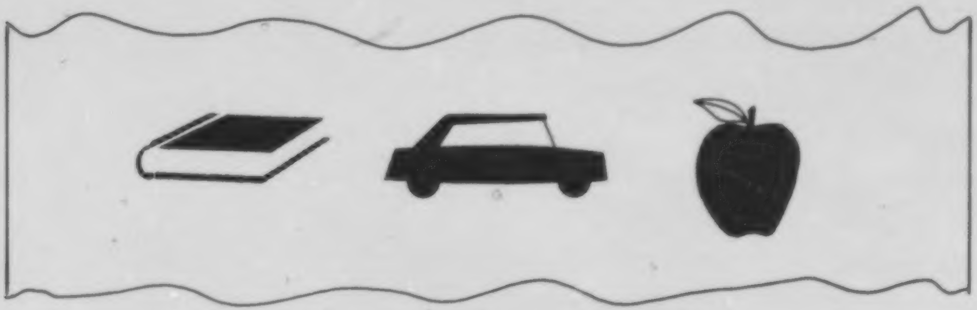
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

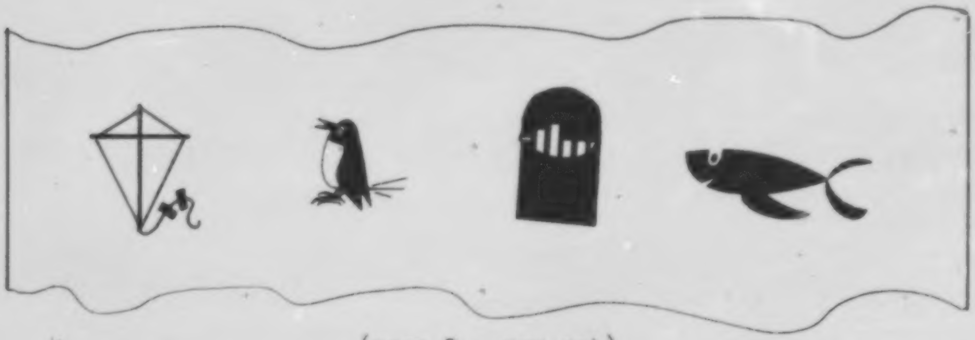
Set II



(page 1 - original pictures)



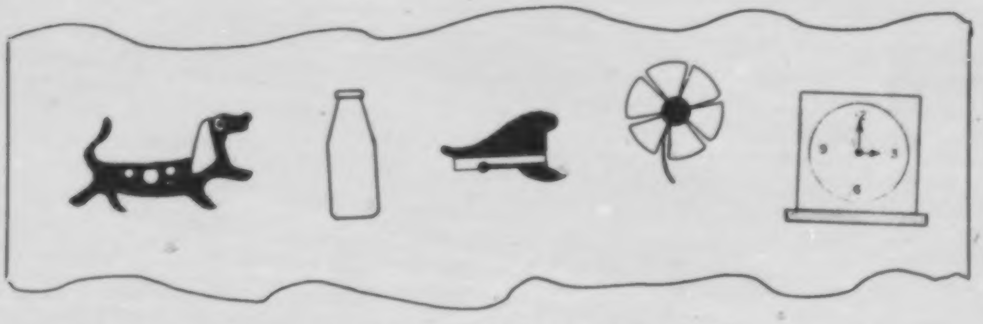
(page 2 - picture removed)



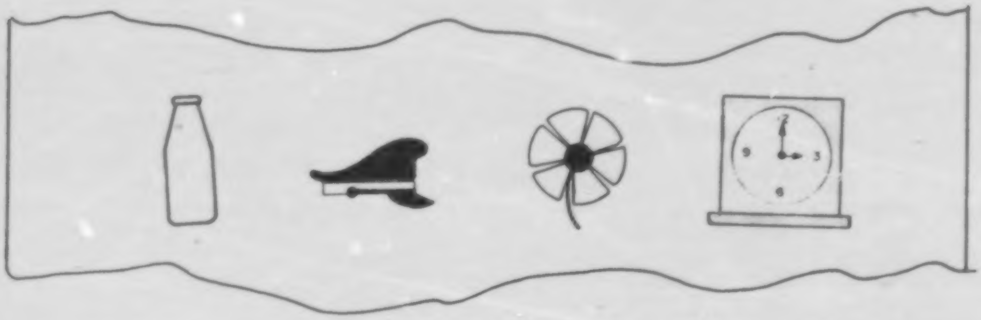
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

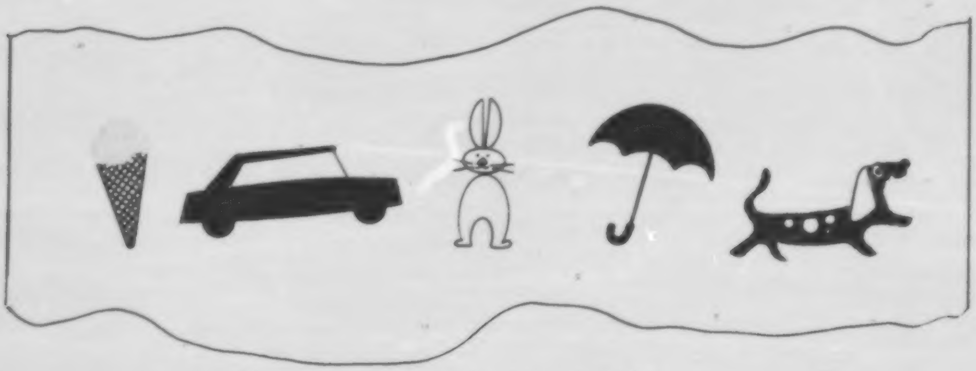
Set III



(page 1 - original pictures)



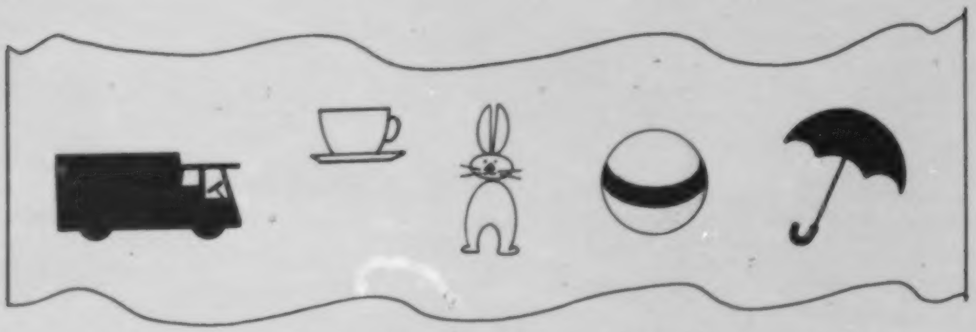
(page 2 - picture removed)



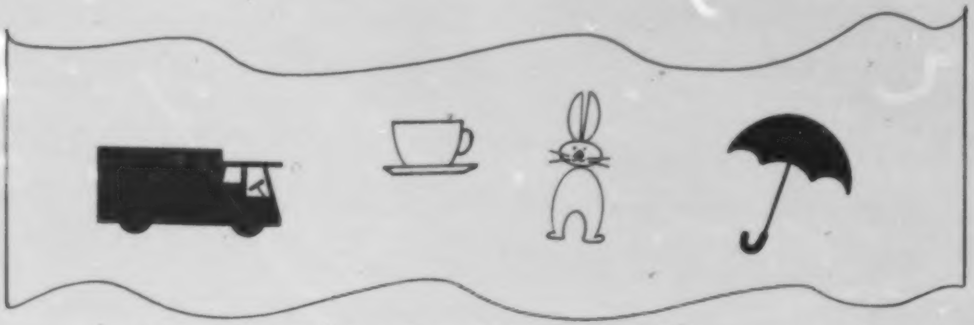
(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

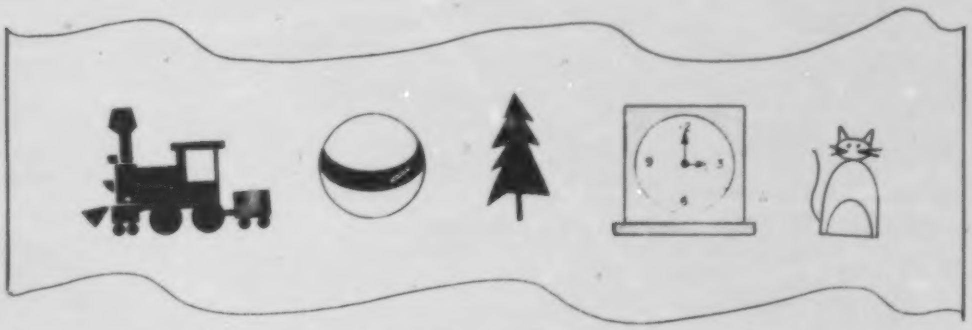
Set IV



(page 1 - original pictures)



(page 2 - picture removed)



(page 3 - new set)

VISUAL MEMORY - PICTURES (continued)

TEST DIRECTIONS:

HERE ARE PICTURES OF SOME THINGS YOU KNOW.

Place Practice Set in front of the child.

LOOK AT EACH OF THESE PICTURES VERY CAREFULLY.

Make sure the child attends to the pictures.

ON THE NEXT PAGE THE PICTURES ARE THE SAME, BUT ONE OF THESE (pointing to the pictures) WILL BE MISSING. YOU HAVE TO REMEMBER THE PICTURES ON THIS PAGE SO THAT YOU KNOW WHAT IS MISSING ON THE NEXT PAGE.

Make sure the child looks at both pictures. If the child does not look at each picture, say:

LOOK AT EACH ONE.

Since the paper is thin and the pictures can be seen through from the page underneath that being shown to the child, a clean sheet of paper has been placed between the one being shown and those underneath it. (Fold the page with the drawings and the plain paper back under the next two pages.)

ALL RIGHT, WHAT PICTURE IS MISSING FROM THIS PAGE THAT WAS ON THE PAGE YOU JUST LOOKED AT?

If the child is correct, mark under First Recall on score sheet, and proceed with Set I. If the child does not reply, or is incorrect, say:

WHAT ELSE WAS ON THE LAST PAGE THAT ISN'T ON THIS PAGE?

Pause. If correct, mark under Second Recall on score sheet, and proceed with Set I. If no reply, then say:

DO YOU KNOW WHAT IS MISSING?

If the child is correct this time, mark under Third Recall, and proceed with Set I. If the child still cannot recall, then proceed as follows:

I'LL SHOW YOU SOME NEW PICTURES.

Turn to the third page of the Practice Set, showing the mouse and the engine. Say:

VISUAL MEMORY - PICTURES (continued)

WHICH ONE OF THESE WAS ON THE FIRST PAGE BUT NOT IN THE PICTURES I JUST SHOWED YOU?

If the child cannot recognize the removed picture of the new set, tell and show him the train engine. Then tell the child:

LET'S TRY ANOTHER GAME LIKE THIS.

Proceed with the same directions through Set IV.

In scoring this test, if the child makes a mistake in vocabulary, such as calling the bird a duck or the engine a train, this is acceptable. If you have any question about the correctness of an answer, write down child's response in the comments.

Continue through all four items in this assessment, plus the practice set.

Note that for each of the five booklets, the third page (e.g., mouse and engine in the practice set) is not used if the child is successful within the first three recalls.

After testing had begin, it became apparent that the scoring instructions for the Visual Memory tests were being misinterpreted by some testers, and the following memorandum was sent to all testers.

Memorandum to Testers:

The instructions for scoring the Visual Memory subtests seem to have led to some confusion for testers. We have decided to modify the instructions somewhat. Please begin using these new instructions on all tests beginning Monday, May 15. Prior to Monday May 15 continue using the old instructions. Also please write down how you have administered and recorded responses to these tests prior to May 15 so that we will know how each tester has interpreted the instructions. Please send this statement to us with your next time sheet.

Instructions for Visual Memory tests to be used beginning May 15:

Original Sets - For each item, a child will be given all three attempts to recall what is missing on the Original Sets, unless he gives the correct answer on the first, or on the second trial. (Notice that the child is given another chance if he gives no response and also if he gives

VISUAL MEMORY - PICTURES (continued)

an incorrect response.) Do not check anything in the "Correct" column for the recall responses. The "Correct" and "Incorrect" columns are to be used only for New Set. Each time the child is given a chance to recall, record something in the appropriate column. If the child names something that he thinks is missing, write this in the appropriate column. If he says he doesn't know, write DK. If he makes no attempt, write NA.

New Sets - If the child has not given the correct answer on any of the three trials for an item, give him the New Set. If he gives a correct response for the New Set, write the response in the "Correct" column for the New Set. If he gives an incorrect response for the New Set, write the response in the "Incorrect" column for the New Set. If he gives a response of "don't know" or makes no attempt, check the last column.

Visual Memory - Pictures

Item No.		Original Set	First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	No Attempt
	Practice Set:	Engine Fish				Mouse Engine			
138.	1	Cat Boat Tree Crayons				Boat Book Bottle Turtle			
139.	2	Book Car Bird Apple				Kite Bird Crayons Fish			
140.	3	Dog Bottle Hat Flower Clock				Cone Car Rabbit Umbrella Dog			
141	4	Truck Cup Rabbit Bell Umbrella				Engine Bell Tree Clock Cat			

Tester's Scoring Grid

VISUAL MEMORY - PICTURES (continued)

The score for this scale is the number of items answered correctly on the first recall. A weighted score had also been constructed by assigning the following numbers: 5 - correct on first recall, 4 - correct on second recall, 3 - correct on third recall, 1 - correct on new set, and 0 - incorrect or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

Weighted scores were assigned only if the children had been given additional chances to recall both when they failed to respond and when they gave incorrect responses. As noted in the "Memorandum to Testers" reproduced as part of the test instructions, testers had been reminded of the correct procedure and had been asked to indicate what their procedure had been before the memorandum had been sent. The information returned by the tester was then used to assign a rating to each visual memory test showing whether the correct procedure had been used. Only the correct tests were then used in computing weighted scores.

Kindergarten
Spring

Form K-02W
Items 36-39

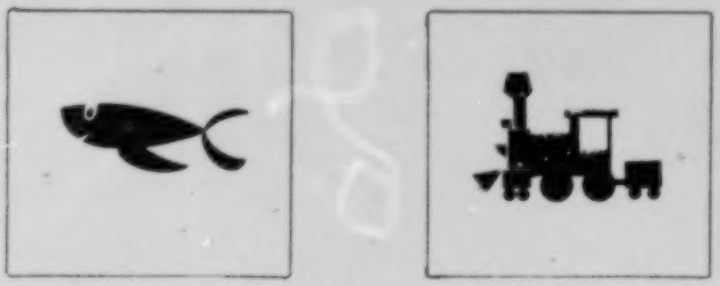
VISUAL MEMORY - PICTURE CARDS

TEST MATERIALS:

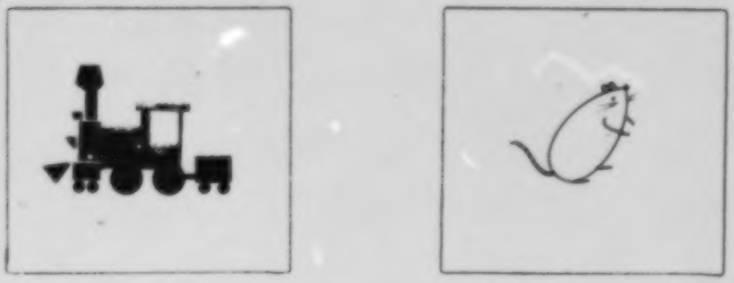
5 sets of drawings on 3" × 3 1/2" cards. Each set is broken into two subsets: the "original" subset from which a picture card is to be removed and a "new" subset which contains a card like the one to be removed from the "original" set plus other picture cards not included in the original set.

The picture cards are reproduced below.

Practice Set



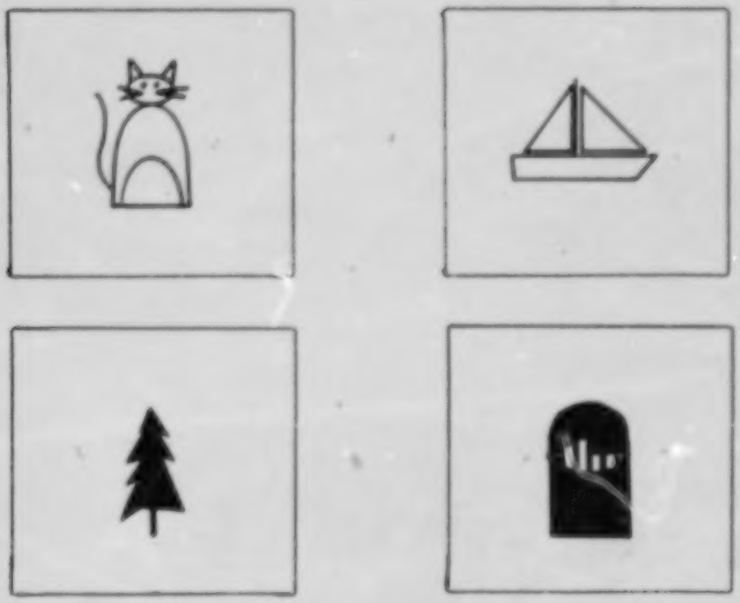
(original set)



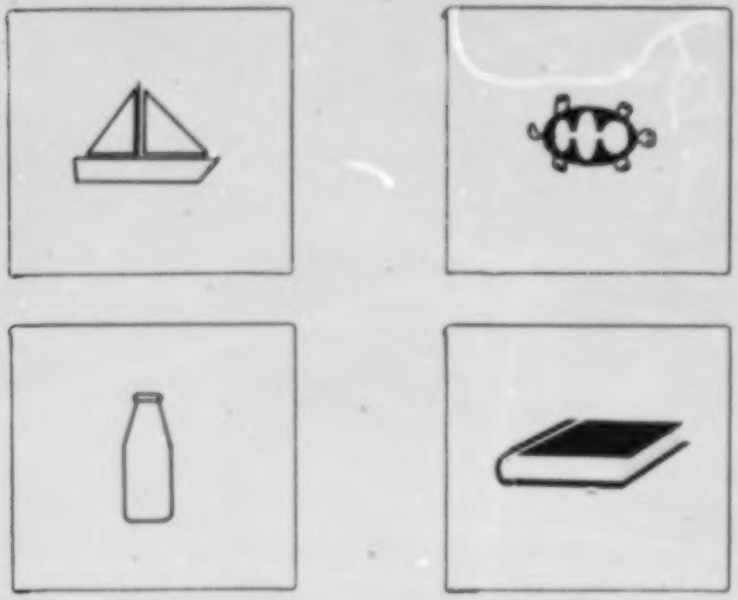
(new set)

VISUAL MEMORY - PICTURE CARDS (continued)

Set I



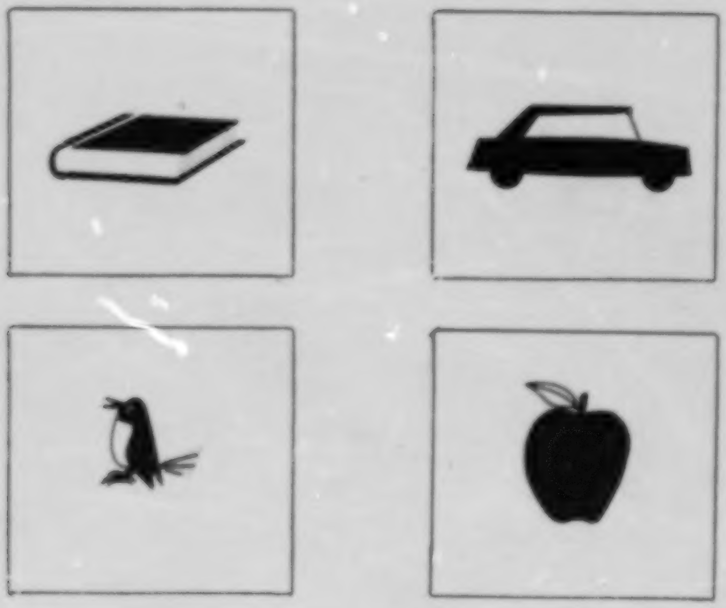
(original set)



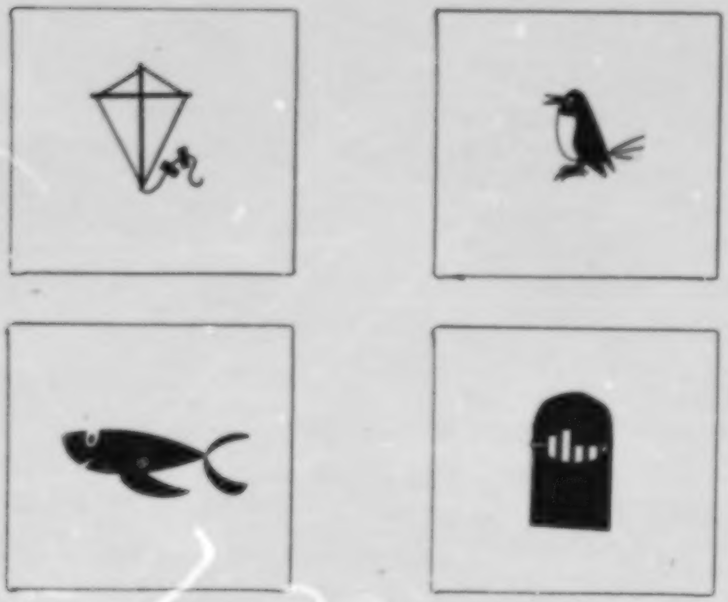
(new set)

VISUAL MEMORY - PICTURE CARDS (continued)

Set II



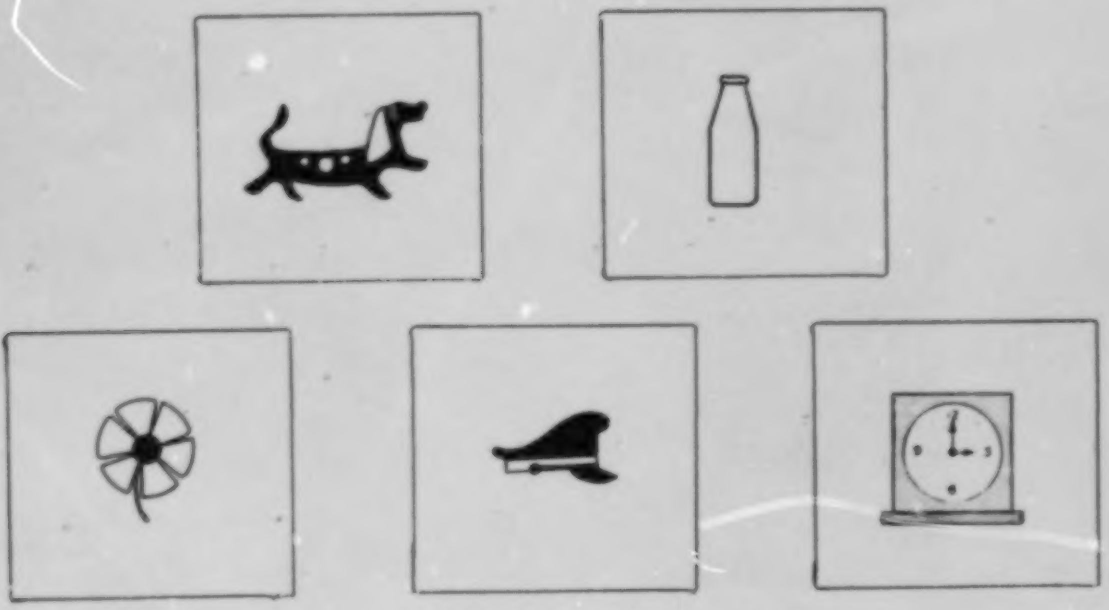
(original set)



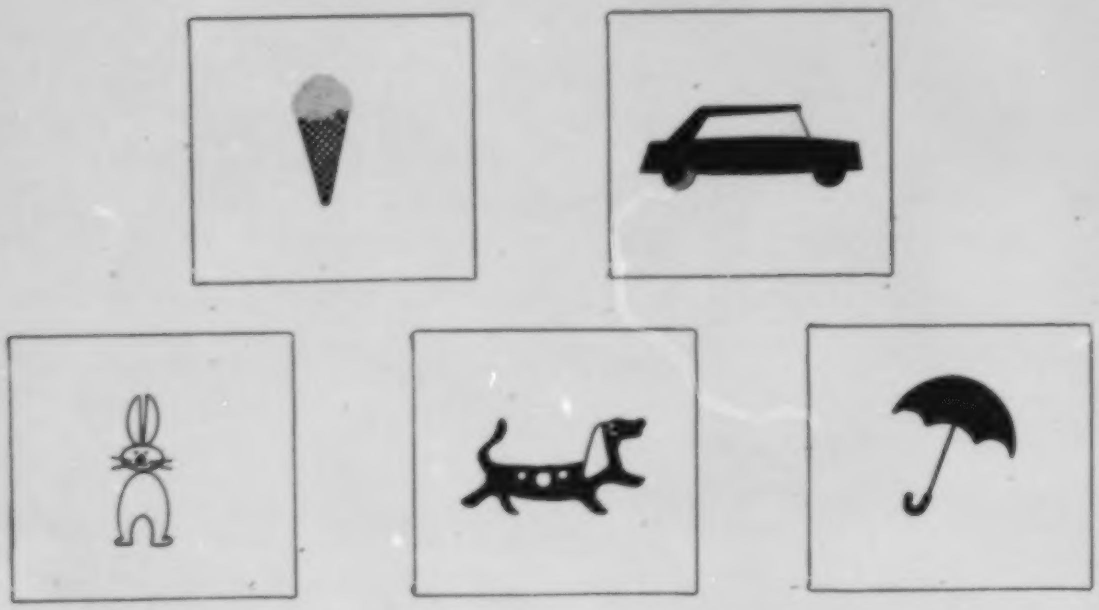
(new set)

VISUAL MEMORY - PICTURE CARDS (continued)

Set III



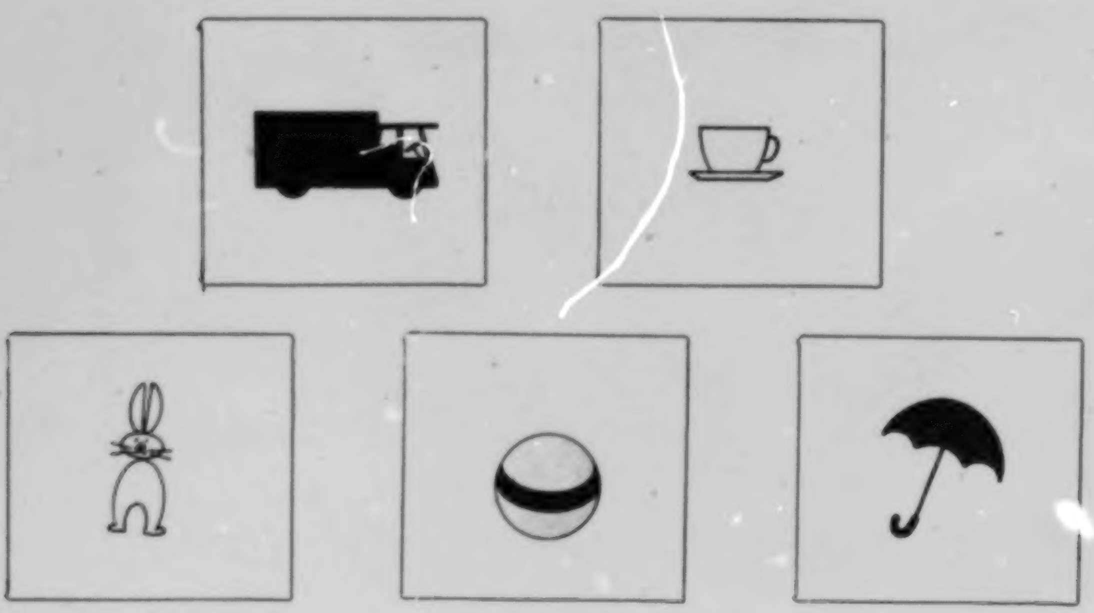
(original set)



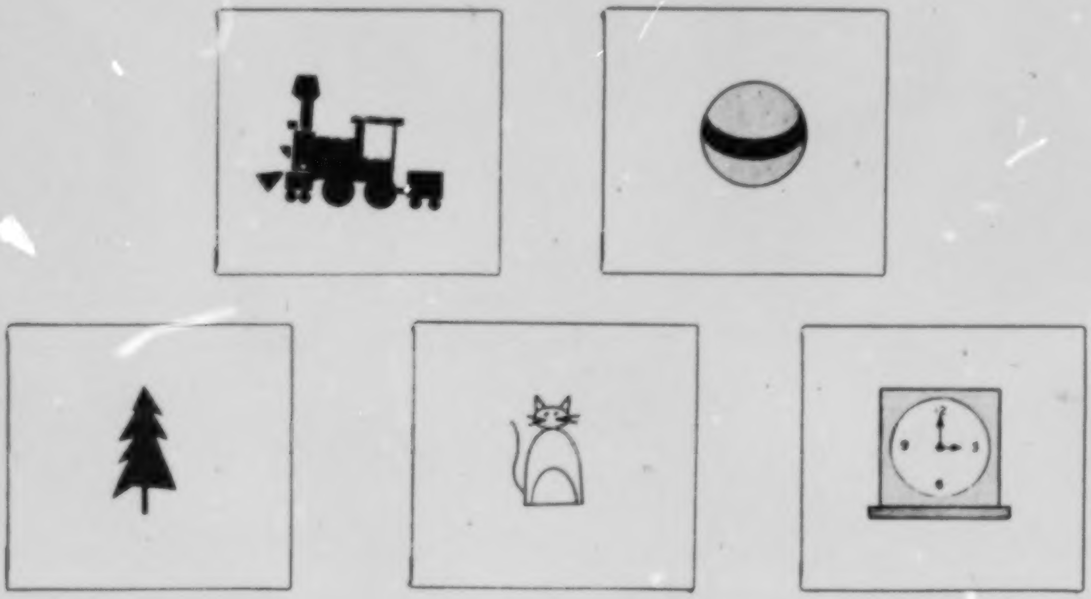
(new set)

VISUAL MEMORY - PICTURE CARDS (continued)

Set IV



(original set)



(new set)

VISUAL MEMORY - PICTURE CARDS (continued)

TEST DIRECTIONS:

HERE ARE PICTURES OF SOME THINGS YOU KNOW.

Place the cards of the Practice Set in a line, from your left to right, with the pictures appearing in order as listed.

LOOK AT EACH OF THE PICTURES VERY CAREFULLY.

Make sure the child attends to the pictures.

I AM GOING TO TAKE ONE OF THESE PICTURES AWAY (point to each card separately) WHILE YOU HAVE YOUR EYES CLOSED.

NOW CLOSE YOUR EYES TIGHTLY AND KEEP THEM CLOSED UNTIL I TELL YOU TO OPEN THEM.

Remove the card with the underlined picture from the table and place it in the box under the table. Close card up so that spacing is even.

OPEN YOUR EYES. WHAT PICTURE WAS ON THE CARD THAT I TOOK AWAY?

If the child is correct, mark under First Recall on score sheet and proceed with the next group. If no reply, then say:

WHAT OTHER PICTURE WAS THERE BEFORE YOU CLOSED YOUR EYES THAT ISN'T THERE NOW? (pause)

If correct, mark under Second Recall on score sheet and proceed with the next group. If no reply then say:

DO YOU REMEMBER WHAT I TOOK AWAY?

If the child is correct this time, mark under Third Recall and proceed with the next group. If the child cannot recall, then proceed as follows:

I'LL SHOW YOU SOME NEW PICTURES.

Move the cards already on the table to the side, and put the new set (contained in a small envelope inside the large envelope) on the table in a line as listed. The picture that had been removed is underlined on the score sheet.

VISUAL MEMORY - PICTURE CARDS (continued)

WHICH ONE OF THESE PICTURES WAS ON THE TABLE BEFORE YOU CLOSED YOUR EYES?

If the child cannot recognize the picture included in the New Set, tell him and show him which picture it was. Tell the child:

LET'S TRY ANOTHER GAME LIKE THIS.

Continue through the remaining four groups with above directions. Score response as correct if child names the object incorrectly but if it is clear that he is referring to the picture that was actually removed. If you are not sure whether the child is referring to the correct object, write his actual response on the score sheet.

After testing had begun, it became apparent that the scoring instructions for the Visual Memory tests were being misinterpreted by some testers, and the following memorandum was sent to all testers.

Memorandum to Testers:

The instructions for scoring the Visual Memory subtests seem to have led to some confusion for testers. We have decided to modify the instructions somewhat. Please begin using these new instructions on all tests beginning Monday, May 15. Prior to Monday May 15 continue using the old instructions. Also please write down how you have administered and recorded responses to these tests prior to May 15 so that we will know how each tester has interpreted the instructions. Please send this statement to us with your next time sheet.

Instructions for Visual Memory tests to be used beginning May 15:

Original Sets - For each item, a child will be given all three attempts to recall what is missing on the Original Sets, unless he gives the correct answer on the first, or on the second trial. (Notice that the child is given another chance if he gives no response and also if he gives an incorrect response.) Do not check anything in the "Correct" column for the recall responses. The "Correct" and "Incorrect" columns are to be used only for New Set. Each time the child is given a chance to recall, record something in the appropriate column. If the child names something that he thinks is missing, write this in the appropriate

VISUAL MEMORY - PICTURE CARDS (continued)

column. If he says he doesn't know, write DK. If he makes no attempt, write NA.

New Sets - If the child has not given the correct answer on any of the three trials for an item, give him the New Set. If he gives a correct response for the New Set, write the response in the "Correct" column for the New Set. If he gives an incorrect response for the New Set, write the response in the "Incorrect" column for the "New Set." If he gives a response of "don't know" or makes no attempt, check the last column.

Visual Memory - Picture Cards

Item No.	Original Set		First Recall	Second Recall	Third Recall	New Set	Correct	Incorrect	No Attempt
	Practice Set: Engine Fish					Mouse Engine			
36.	1	Cat Boat Tree Crayons				Boat Book Bottle Turtle			
37.	2	Book Car Bird Apple				Kite Bird Crayons Fish			
38.	3	Dog Bottle Hat Flower Clock				Cone Car Rabbit Umbrella Dog			
39.	4	Truck Cup Rabbit Ball Umbrella				Engine Ball Tree Clock Cat			

Tester's Scoring Grid

VISUAL MEMORY - PICTURE CARDS (continued)

The score for this scale is the number of items answered correctly on the first recall. A weighted score had also been constructed by assigning the following numbers: 5 - correct on first recall, 4 - correct on second recall, 3 - correct on third recall, 1 - correct on new set, and 0 - incorrect or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

Weighted scores were assigned only if the children had been given additional chances to recall both when they failed to respond and when they gave incorrect responses. As noted in the "Memorandum to Testers" reproduced as part of the test instructions, testers had been reminded of the correct procedure and had been asked to indicate what their procedure had been before the memorandum had been sent. The information sent by the tester was then used to assign a rating to each Visual Memory test showing whether the correct procedure had been used. Only the correct tests were then used in computing weighted scores.

Kindergarten
Spring

Form K-02W
Items 52-55

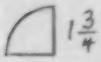
VISUAL MEMORY - SHAPES

TEST MATERIALS:

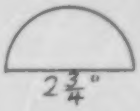
1 small pad of paper

1 pencil

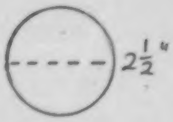
14 geometric shapes - monochromatic; cut from light-weight cardboard



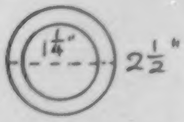
quarter-circle



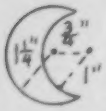
semi-circle



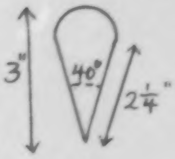
circle



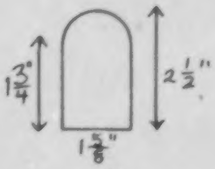
ring



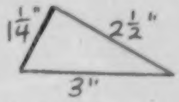
crescent



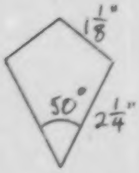
cone



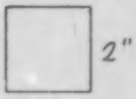
arch



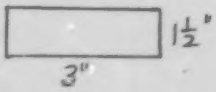
triangle



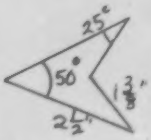
diamond



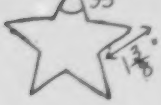
square



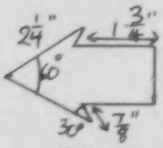
rectangle


25°
50°
1 3/8"
2 1/2"

wedge



star


2 1/4"
1 3/4"
60°
30°
7/8"

arrow

VISUAL MEMORY - SHAPES (continued)

TEST DIRECTIONS:

I AM GOING TO PUT SOME SHAPES ON THE TABLE. WATCH CAREFULLY.

Find the shapes which are listed on the score sheets for the Original Set. Put the shapes in a line in order from your left to right on the table as listed. The orientation of the shapes is shown on a separate sheet. (Set 1 - Original Set is: rectangle, wedge pointing to child's left, circle).

LOOK AT THE SHAPES VERY CAREFULLY.

Make sure the child attends to the shapes.

I AM GOING TO TAKE ONE OF THESE AWAY (point to each shape separately) WHILE YOU HAVE YOUR EYES CLOSED.

NOW CLOSE YOUR EYES TIGHTLY AND KEEP THEM CLOSED UNTIL I TELL YOU TO OPEN THEM.

Remove the shape that is underlined on the score sheet from the table and place it in the box under the table. (For Set 1, remove the circle.) Respace shapes to that spacing is even.

OPEN YOUR EYES. WHAT DID I TAKE AWAY?

If the child is correct, mark under First Recall on score sheet and proceed with the next set. If no reply, or incorrect, then say:

WHAT ELSE WAS THERE BEFORE YOU CLOSED YOUR EYES THAT ISN'T THERE NOW?

Pause. If correct, mark under Second Recall on score sheet and proceed with the next set. If no reply, then say:

DO YOU REMEMBER WHAT I TOOK AWAY?

If the child is correct this time, mark under Third Recall and proceed with the next set. If the child cannot recall, then say:

VISUAL MEMORY - SHAPES (continued)

IF YOU DO NOT KNOW THE NAME OF THE SHAPE, CAN YOU TELL ME WHAT IT LOOKS LIKE, OR CAN YOU DRAW ME A PICTURE OF THE SHAPE?

If reasonably close in description, mark as correctly described or drawn, as the case may be, under "Described or Drawn" and proceed with the next set. (If the child wishes to draw the shape, let him draw it on a sheet of paper. Then tester should copy the child's drawing on the score sheet, reducing the size if the child makes a large drawing.) If neither described nor drawn correctly, then proceed as follows:

I'LL PUT SOME OTHER SHAPES ON THE TABLE.

Remove the shapes already on the table and put out the shapes for the New Set (which is listed on the score sheet) in a line in the order as given. The shape that had been removed is underlined on the score sheet. (For Set 1, the New Set is: arrow, circle, triangle.)

WHICH ONE OF THESE WAS ON THE TABLE BEFORE YOU CLOSED YOUR EYES?

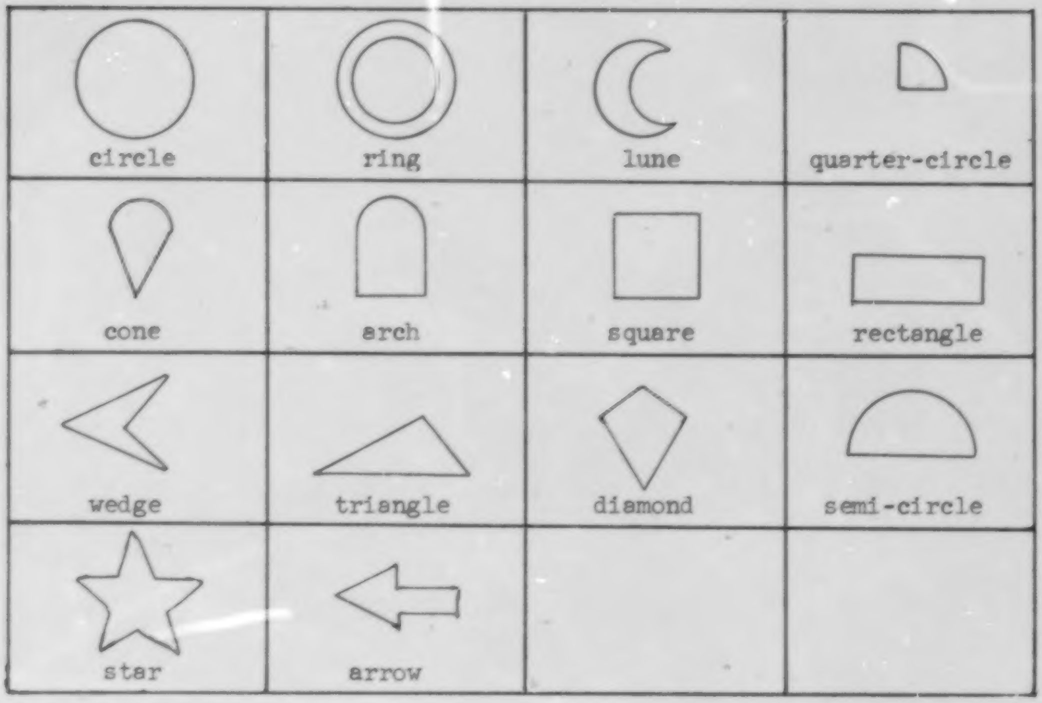
If the child cannot recognize the shape included in the new set, tell him and show him which shape it was. Tell the child:

LET'S TRY ANOTHER GAME LIKE THIS.

Continue with the next set. Each of the four sets is to be given with the above instructions. With each of the four sets, the child is given three chances to recall which shape was removed from the Original Set. He is given the New Set of each set only if he has failed on the three recalls of an Original Set.

VISUAL MEMORY - SHAPES (continued)

Orientation of Shapes as Seen by Child


circle
ring
lune
quarter-circle
cone
arch
square
rectangle
wedge
triangle
diamond
semi-circle
star
arrow

After testing had begun, it became apparent that the scoring instructions for the Visual Memory tests were being misinterpreted by some testers, and the following memorandum was sent to all testers.

Memorandum to Testers:

The instructions for scoring the Visual Memory subtests seem to have led to some confusion for testers. We have decided to modify the instructions somewhat. Please begin using these new instructions on all tests beginning Monday, May 15. Prior to Monday May 15 continue using the old instructions. Also please write down how you have administered and recorded responses to these tests prior to May 15 so that we will know how each tester has interpreted the instructions. Please send this statement to us with your next time sheet.

VISUAL MEMORY - SHAPES (continued)

Instructions for Visual Memory tests to be used beginning May 15:

Original Sets - For each item, a child will be given all three attempts to recall what is missing on the Original Sets, unless he gives the correct answer on the first, or on the second trial. (Notice that the child is given another chance if he gives no response and also if he gives an incorrect response.) Do not check anything in the "Correct" column for the recall responses. The "Correct" and "Incorrect" columns are to be used only for New Set. Each time the child is given a chance to recall, record something in the appropriate column. If the child names something that he thinks is missing, write this in the appropriate column. If he says he doesn't know, write DK. If he makes no attempt, write NA.

New Sets - If the child has not given the correct answer on any of the three trials for an item, give him the New Set. If he gives a correct response for the New Set, write the response in the "Correct" column for the New Set. If he gives an incorrect response for the New Set, write the response in the "Incorrect" column for the New Set. If he gives a response of "don't know" or makes no attempt, check the last column.

Visual Memory - Shapes

Item No.		Original Set	First Recall	Second Recall	Third Recall	Described or Drawn	New Set	Correct	Incorrect	No Attempt
52.	1	Rectangle Wedge Circle					Arrow Circle Triangle			
53.	2	Crescent Star Rectangle Ring					Wedge Quarter-circle Star Cone			
54.	3	Square Arrow Semi-circle					Arch Wedge Circle Square			
55.	4	Circle Triangle Arrow Wedge					Triangle Star Ring Diamond			

Tester's Scoring Grid

VISUAL MEMORY - SHAPES (continued)

The score for this scale is the number of items answered correctly on the first recall. A weighted score had also been constructed by assigning the following numbers: 5 - correct on first recall, 4 - correct on second recall, 3 - correct on third recall, 1 - correct on new set, and 0 - other responses. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

Weighted scores were assigned only if the children had been given additional chances to recall both when they failed to respond and when they gave incorrect responses. As noted in the "Memorandum to Testers" reproduced as part of the test instructions, testers had been reminded of the correct procedure and had been asked to indicate what their procedure had been before the memorandum had been set. The information sent by the tester was then used to assign a rating to each Visual Memory test showing whether the correct procedure had been used. Only the correct tests were then used in computing weighted scores.

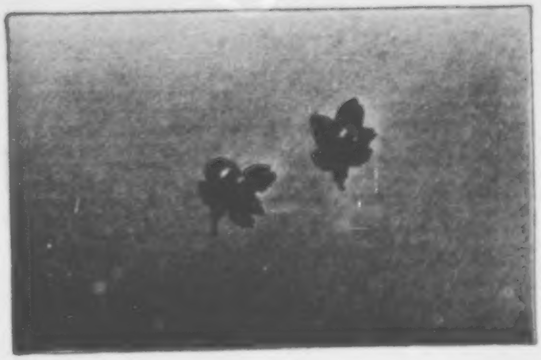
ORDERING SETS OF OBJECTS

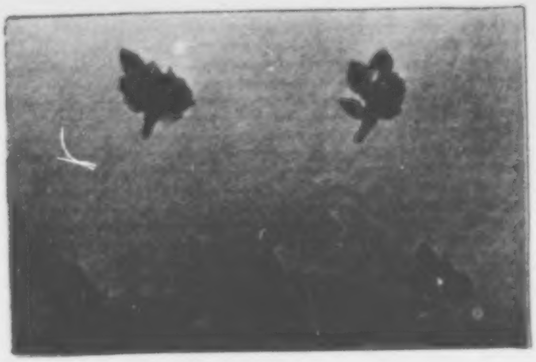
TEST MATERIALS:

4 sets of 9" × 6" corrugated cardboard cards with varying numbers of objects stapled to them in symmetric patterns

The sets of objects are pictured below.

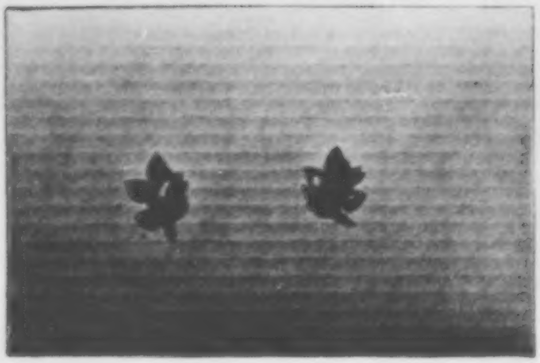
Practice Set

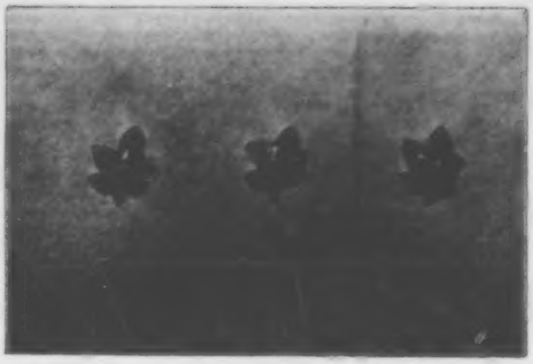


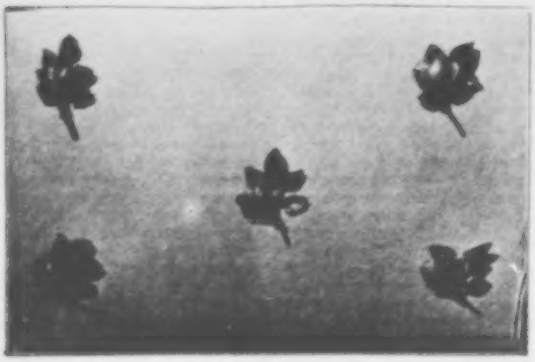


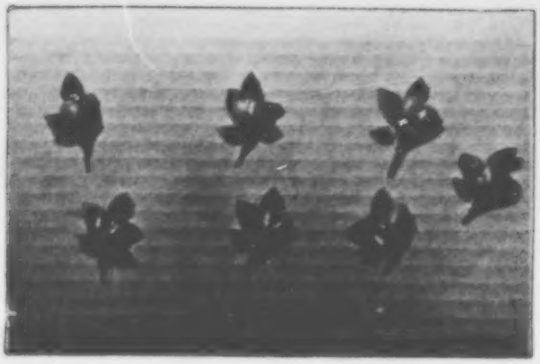
ORDERING SETS OF OBJECTS (continued)

Set 1



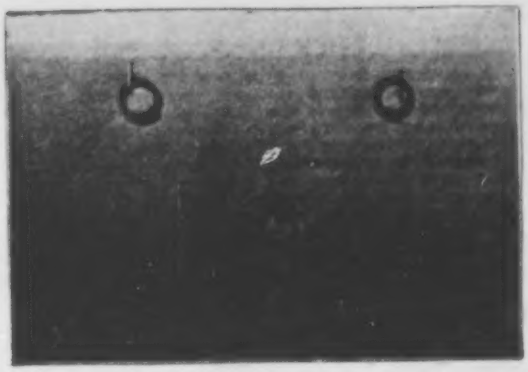


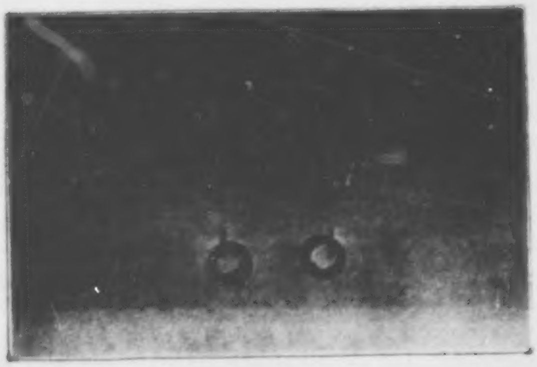


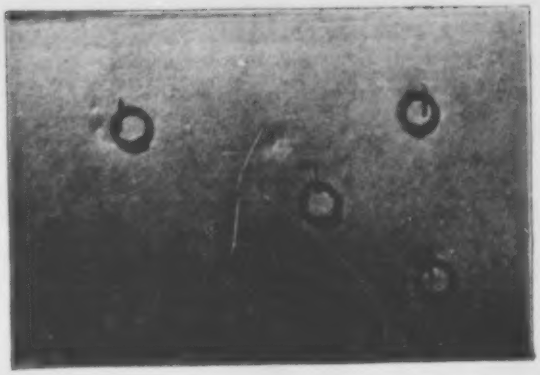


ORDERING SETS OF OBJECTS (continued)

Set 2

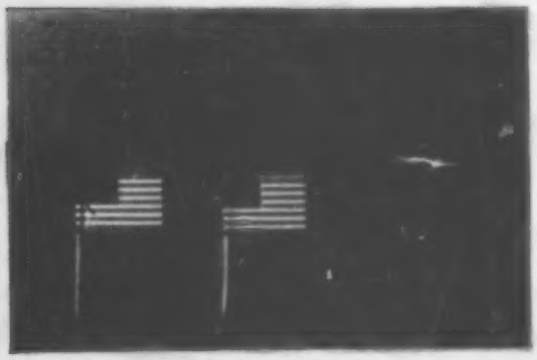


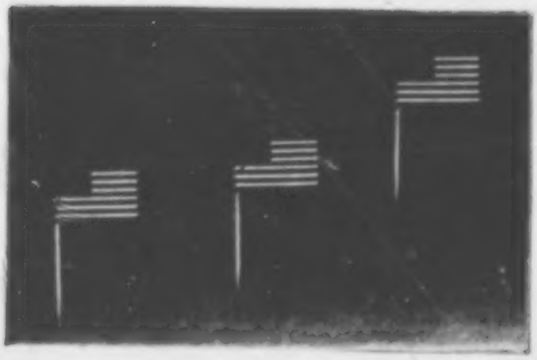


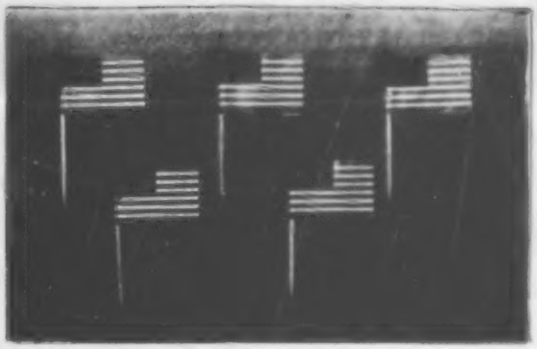


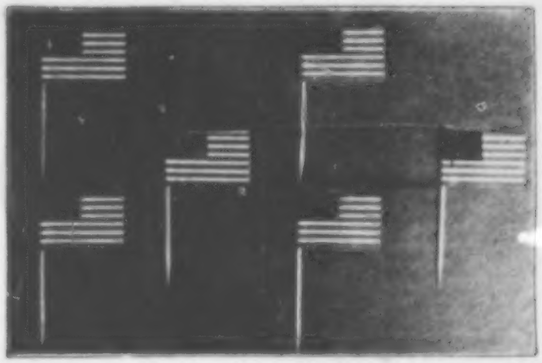
ORDERING SETS OF OBJECTS (continued)

Set 3





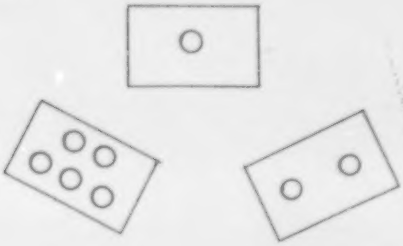




TEST DIRECTIONS:

Lay out on the table the three cards in the Practice Set as indicated:

(Practice Set)



ORDERING SETS OF OBJECTS (continued)

HERE ARE THREE CARDS. EACH CARD HAS A SET OF FLOWERS ON IT. CAN YOU PUT THESE CARDS IN A LINE SO THAT THEY GO FROM THE SET WITH THE MOST FLOWERS AT ONE END TO THE SET WITH THE FEWEST FLOWERS AT THE OTHER END?

If the child does not respond, say:

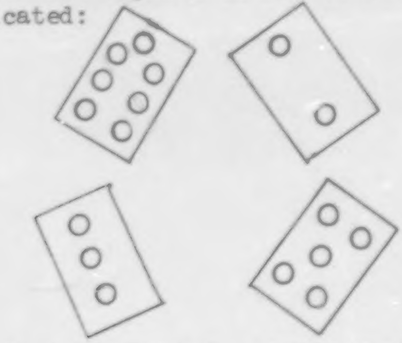
PUT THE CARDS IN A LINE SO THAT THEY ARE IN ORDER WITH THE MOST FLOWERS AT ONE END AND THE FEWEST FLOWERS AT THE OTHER END.

Give the child a score for the Practice Set by checking either Ordered Correctly (1st column), Attempted, but Unsuccessful (3rd column), or No Attempt (4th column).

If the child has failed to order the cards correctly or has made no attempt, put the three cards of the Practice Set in order and say:

SEE, I HAVE PUT THE CARDS IN ORDER SO THAT THEY GO FROM THE CARD WITH THE MOST FLOWERS AT THIS END (point to the card with the most flowers) TO THE CARD WITH THE FEWEST FLOWERS (point to the card with the fewest flowers) AT THE OTHER END.

Remove the cards and replace them with Set 1 of cards placed as indicated:



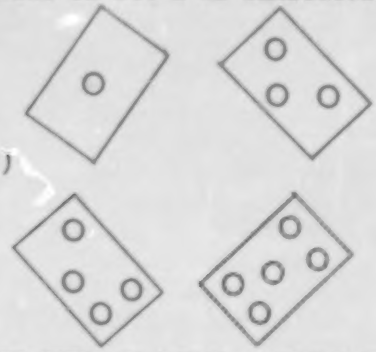
(Set 1)

HERE ARE FOUR SETS OF FLOWERS. THERE IS A SET OF FLOWERS ON EACH CARD. CAN YOU PUT THESE SETS IN A LINE SO THAT THEY GO IN ORDER FROM THE SET WITH THE MOST FLOWERS AT ONE END TO THE SET WITH THE FEWEST FLOWERS AT THE OTHER END?

ORDERING SETS OF OBJECTS (continued)

If the child does not respond, do not repeat the question, but go on to the next set of cards.

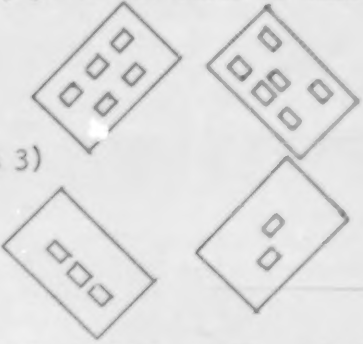
Place the cards in Set 2 as indicated:



(Set 2)

HERE ARE FOUR SETS OF RINGS. THERE IS A SET OF RINGS ON EACH CARD. CAN YOU PUT THESE SETS IN A LINE SO THAT THEY GO IN ORDER FROM THE SET WITH THE MOST RINGS AT ONE END TO THE SET WITH THE FEWEST RINGS AT THE OTHER END?

For Set 3, place the cards as indicated:



(Set 3)

HERE ARE FOUR SETS OF FLAGS. THERE IS A SET OF FLAGS ON EACH CARD. CAN YOU PUT THESE IN A LINE SO THAT THEY GO IN ORDER FROM THE SET WITH THE MOST FLAGS AT ONE END TO THE SET WITH THE FEWEST FLAGS AT THE OTHER END?

In scoring each of Sets 1, 2, and 3, note that there are four columns, of which one should be checked. The left-hand column indicates that the child ordered the sets correctly, either from most to fewest or from fewest to most. The second column indicates that the child got the two end sets correct but the middle ones reversed. The third column is for the child who made an attempt but had no success, and the last column is for the child who makes no attempt at all.

ORDERING SETS OF OBJECTS (continued)

Ordering - Sets of Objects

Item No.	Set No.	Ordered Correctly Most-fewest or Fewest-most	Both end sets ordered correctly Middle sets reversed	Attempted, but Unsuccessful	No Attempt
	Prac.				
142.	1				
143.	2				
144.	3				

Tester's Scoring Grid

The score for this scale is the number of items ordered correctly. A weighted score had also been constructed by assigning the following numbers: 2 - ordered correctly, 1 - ends ordered correctly, and 0 - unsuccessful attempt or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

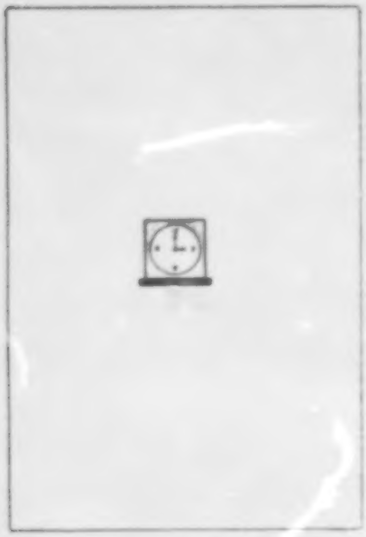
ORDERING PICTURED SETS

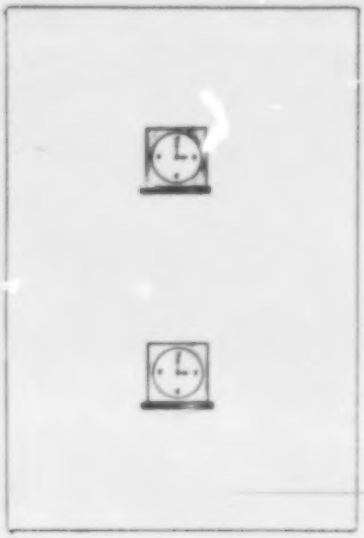
TEST MATERIALS:

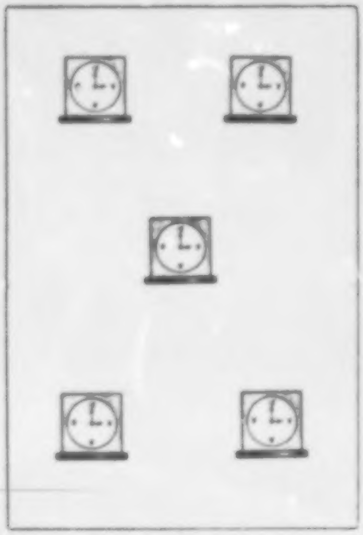
4 sets of 4" × 6" cards with varying numbers of drawings of a familiar object placed in symmetric patterns on the cards

The cards are reproduced below.

Practice Set

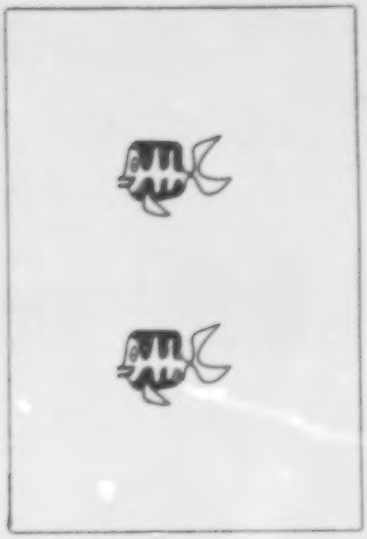


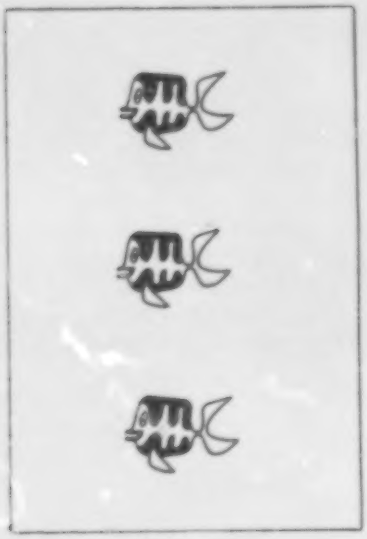


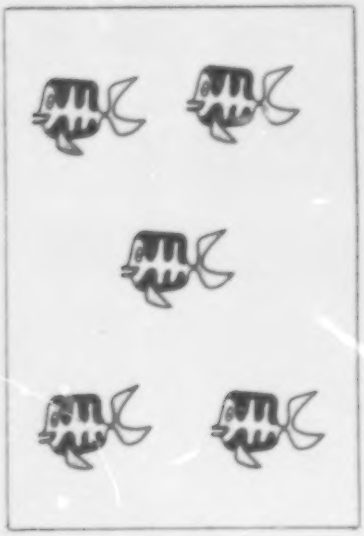


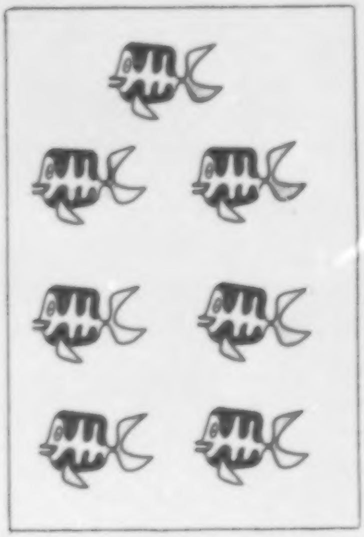
ORDERING PICTURED SETS (continued)

Set 1



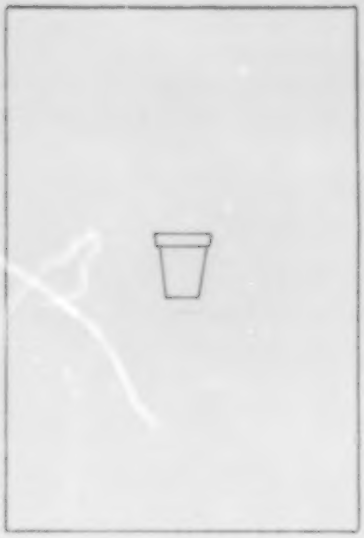


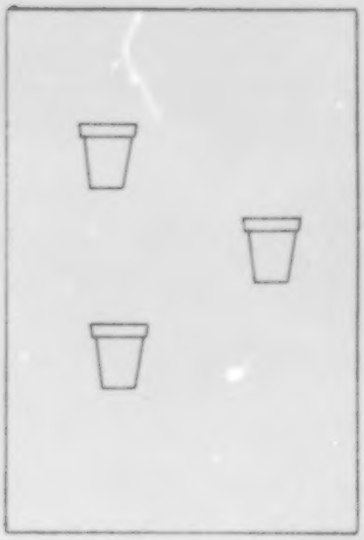


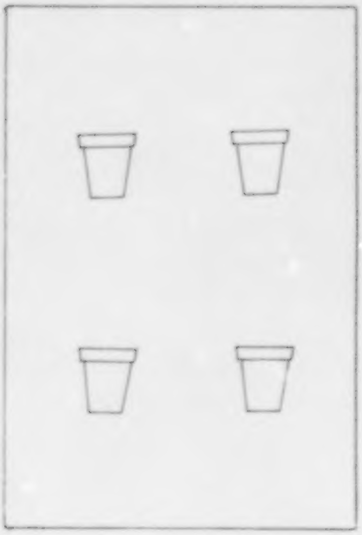


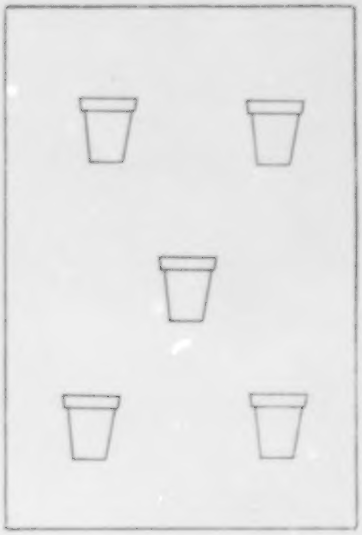
ORDERING PICTURED SETS (continued)

Set 2



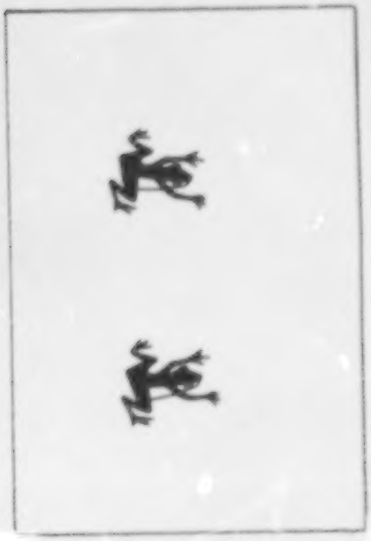


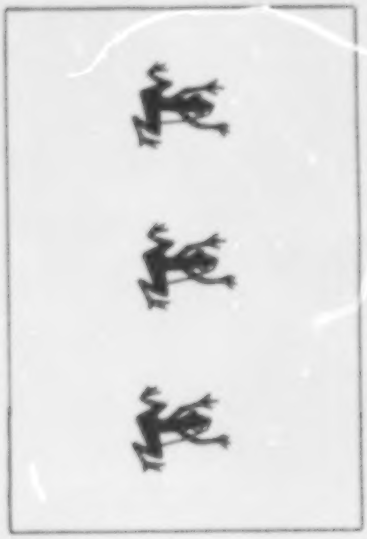


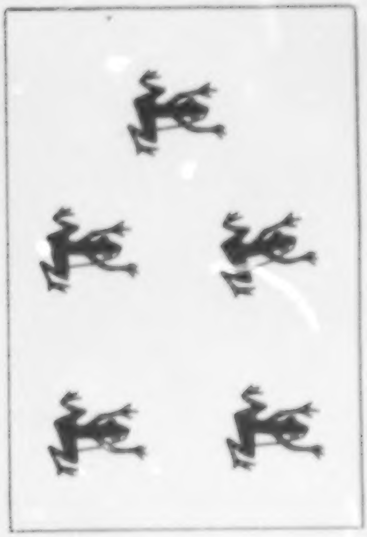


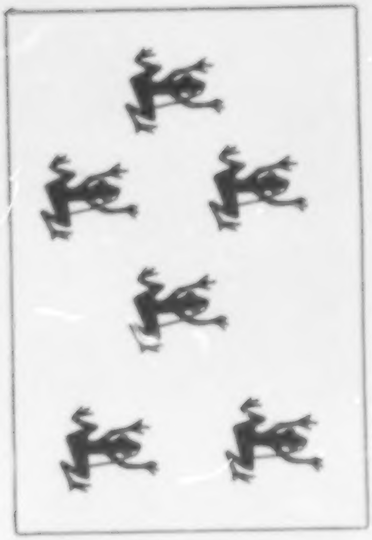
ORDERING PICTURED SETS (continued)

Set 3





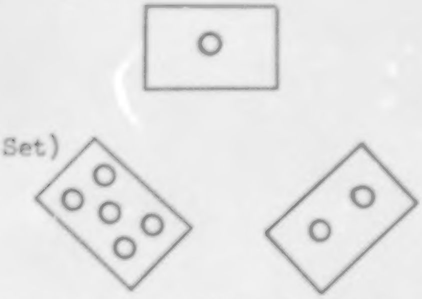




ORDERING PICTURED SETS (continued)

TEST DIRECTIONS:

Lay out on the table the three cards in the first set (marked Practice Set) as indicated:



(Practice Set)

HERE ARE THREE CARDS. EACH CARD HAS A SET OF PICTURES OF CLOCKS ON IT. CAN YOU PUT THESE SETS IN A LINE SO THAT THEY GO FROM THE SET WITH THE MOST PICTURES AT ONE END TO THE SET WITH THE FEWEST PICTURES AT THE OTHER END?

If the child does not respond, say:

PUT THE CARDS IN A LINE SO THEY ARE IN ORDER WITH THE MOST CLOCKS AT ONE END AND THE FEWEST CLOCKS AT THE OTHER END.

Give the child a score for the Practice Set by checking either Ordered Correctly (1st column), Attempted, but Unsuccessful (3rd column), or No Attempt (4th column).

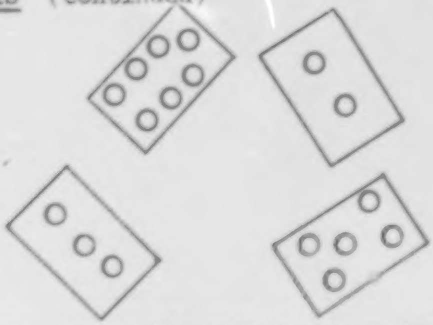
If the child has failed to order the cards correctly or has made no attempt, put the three cards of the Practice Set in order and say:

SEE, I HAVE PUT THE CARDS IN ORDER SO THAT THEY GO FROM THE CARD WITH THE MOST CLOCKS AT THIS END (point to the card with most clocks) TO THE CARD WITH THE FEWEST CLOCKS (point to card with fewest clocks) AT THE OTHER END.

Remove the cards and replace them with Set 1, placed as indicated:

ORDERING PICTURED SETS (continued)

(Set 1)

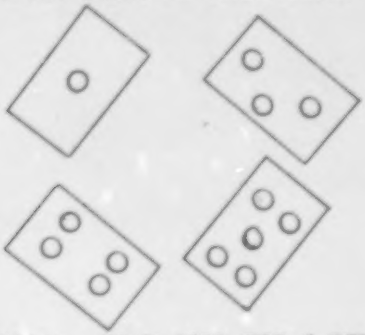


HERE ARE FOUR CARDS. EACH CARD HAS A SET OF PICTURES OF FISH ON IT. CAN YOU PUT THESE IN A LINE SO THAT THEY GO IN ORDER FROM THE SET WITH THE MOST FISH AT ONE END TO THE SET WITH THE FEWEST FISH AT THE OTHER END?

If the child does not respond, do not repeat the question but go on to the next set of cards.

For Set 2, place the cards as indicated:

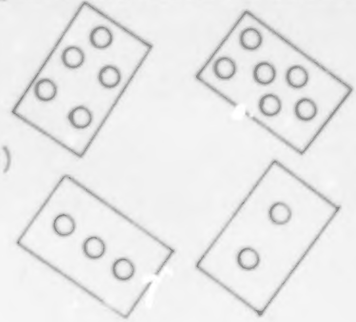
(Set 2)



HERE ARE FOUR CARDS. EACH CARD HAS A SET OF PICTURES OF FLOWER POTS ON IT. CAN YOU PUT THESE IN A LINE SO THAT THEY GO IN ORDER FROM THE SET WITH THE MOST FLOWER POTS AT ONE END TO THE SET WITH THE FEWEST FLOWER POTS AT THE OTHER END?

For Set 3, place the cards as indicated:

(Set 3)



ORDERING PICTURED SETS (continued)

HERE ARE FOUR CARDS. EACH CARD HAS A SET OF PICTURES OF FROGS ON IT. CAN YOU PUT THESE IN A LINE SO THAT THEY GO IN ORDER FROM THE SET WITH THE MOST FROGS AT ONE END TO THE SET WITH THE FEWEST FROGS AT THE OTHER END?

In scoring each of the Sets 1, 2, and 3 note that there are four columns, of which one should be checked, following the same rules as the preceding test.

Ordering - Pictured Sets

Item No.	Set No.	Ordered correctly Most-fewest or Fewest-most	Both end sets ordered correctly Middle sets reversed	Attempted, but unsuccessful	No Attempt
	Prac.				
145.	1				
146.	2				
147.	3				

Tester's Scoring Grid

The score for this scale is the number of items ordered correctly. A weighted score had also been constructed by assigning the following numbers: 2 - ordered correctly, 1 - ends ordered correctly, and 0 - unsuccessful attempt or no attempt. This weighted score provided no more information than did the unweighted score and is, therefore, not reported.

Kindergarten
Spring

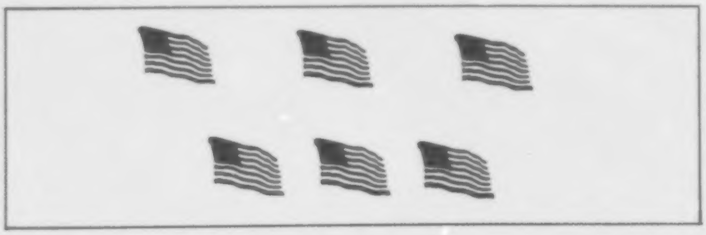
Form K-02Z
Items 148-153

CONSERVATION - PICTURES

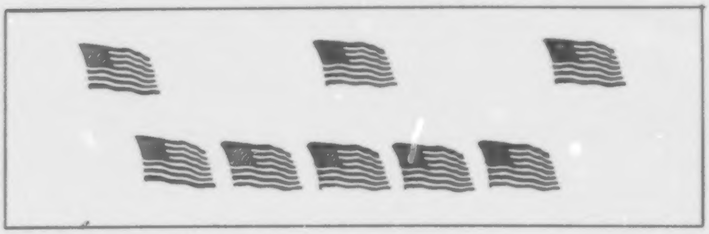
TEST MATERIALS:

6 8" × 2 1/2" cards with two rows of U.S. flags or shields on each card. On the back of each card at the top is printed "Conservation Pictures - Top of Card ... " (The cards are numbered 1 through 6 to indicate the order in which they are to be presented to the child.)

The cards are reproduced below.

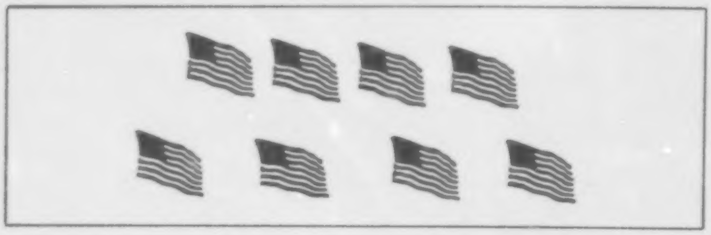


Card 1

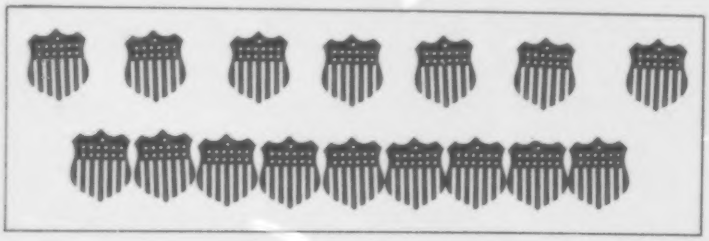


Card 2

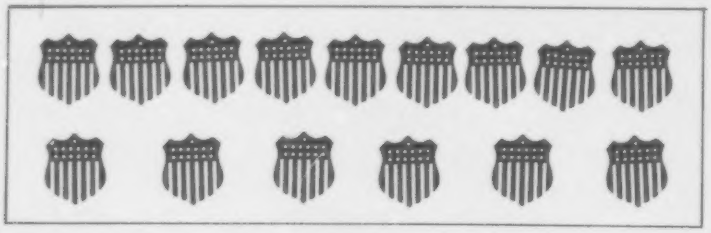
CONSERVATION - PICTURES (continued)



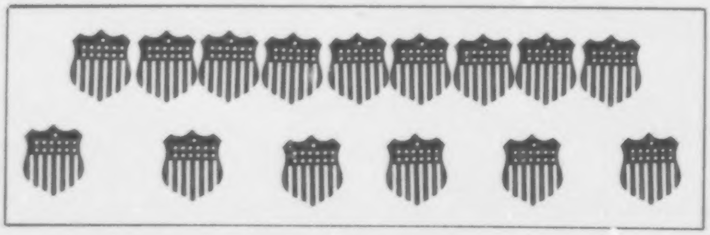
Card 3



Card 4



Card 5



Card 6

CONSERVATION - PICTURES (continued)

TEST DIRECTIONS:

Place Card 1 in front of the child. The top of the card, as noted on the back, should be on the tester's side.

Say to the child:

ON THIS CARD THERE ARE TWO ROWS OF FLAGS. HERE (running your finger along the row nearer you) IS THE TOP ROW, AND HERE (running your finger along the row nearer the child) IS THE BOTTOM ROW. ARE THERE MORE FLAGS IN THE TOP ROW, OR ARE THERE MORE FLAGS IN THE BOTTOM ROW, OR IS THERE THE SAME NUMBER OF FLAGS IN EACH ROW?

If the child does not respond, say:

WHICH ROW HAS MORE FLAGS, THE ONE ON TOP OR THE ONE ON THE BOTTOM? (pause) POINT TO THE ROW WITH MORE FLAGS.

On this and the succeeding cards in this task, allow the child to point to his choice if he wishes to.

Replace Card 1 with Card 2, again making sure it is oriented correctly.

This time say:

WHICH ROW ON THIS CARD HAS MORE FLAGS? (pause) DOES THE TOP ROW HAVE MORE FLAGS, OR DOES THE BOTTOM ROW HAVE MORE FLAGS, OR DO THEY BOTH HAVE THE SAME NUMBER?

This time, if the child does not respond, go on to Card 3 and continue through Card 6 asking the same question each time, except that on Card 4 through 6 the word FLAGS should be replaced by the word SHIELDS.

In scoring these items, put a check mark in the left-hand column if the child asserts that there are more in the top row than in the bottom row, a check mark in the second column if the child asserts that there are more in the bottom row, a check mark in the third column if the child asserts that there are the same number in each row, and a check mark in the last column if the child does not respond.

CONSERVATION - PICTURES (continued)

Conservation - Pictures

Item No.	Card No.	Child asserts more flags in TOP row	Child asserts more flags in BOTTOM row	Child asserts same number flags each row	No Attempt
148.	1				
149.	2				
150.	3				
151.	4				
152.	5				
153.	6				

Tester's Scoring Grid

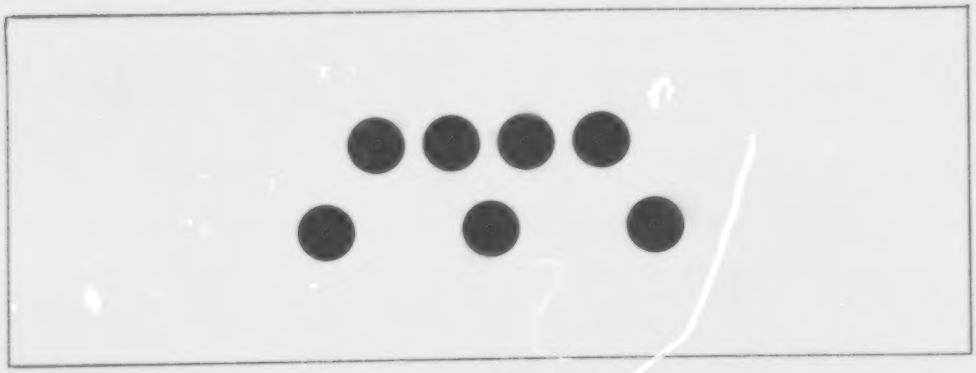
Only the correct response for each item is scored as correct.

CONSERVATION - DOTS

TEST MATERIALS:

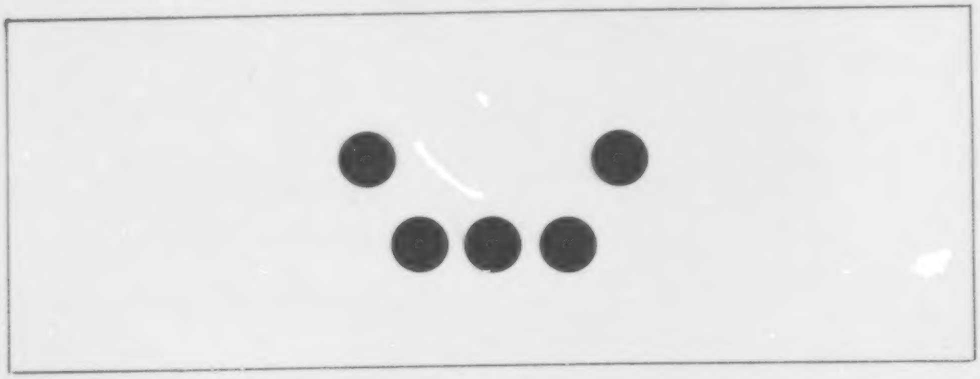
6 11" × 4" cards with two rows of dots on each card. On the back of each card at the top is printed "Conservation Dots - Top of Card ... " (The cards are numbered 1 through 6 to indicate the order in which they are to be presented to the child.)

The cards are reproduced below.



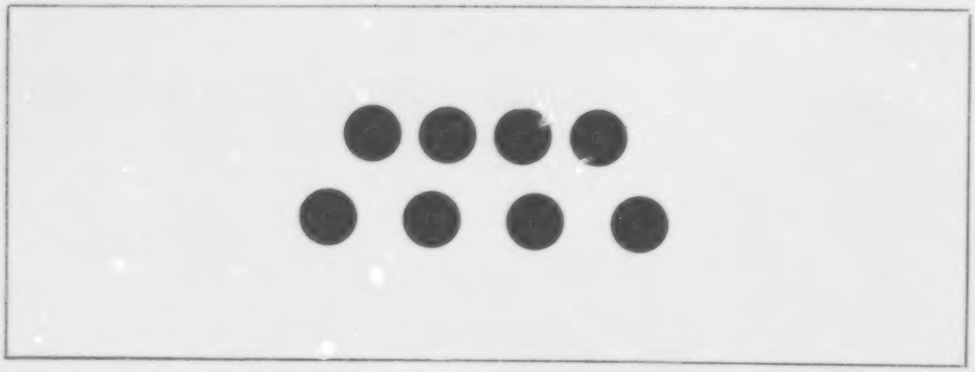
Card 1

1

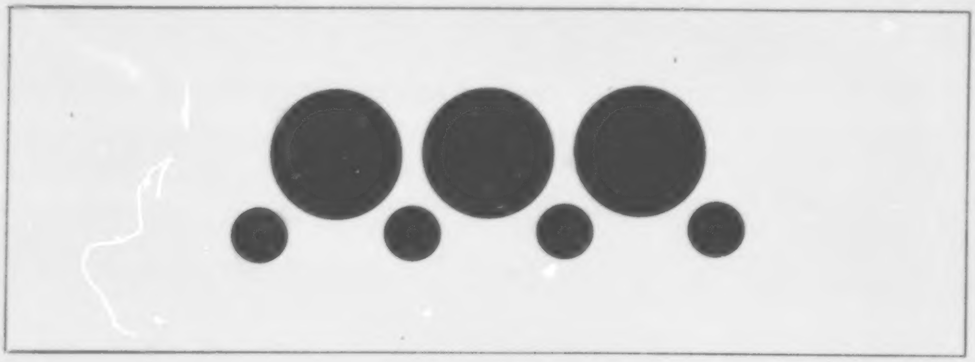


Card 2

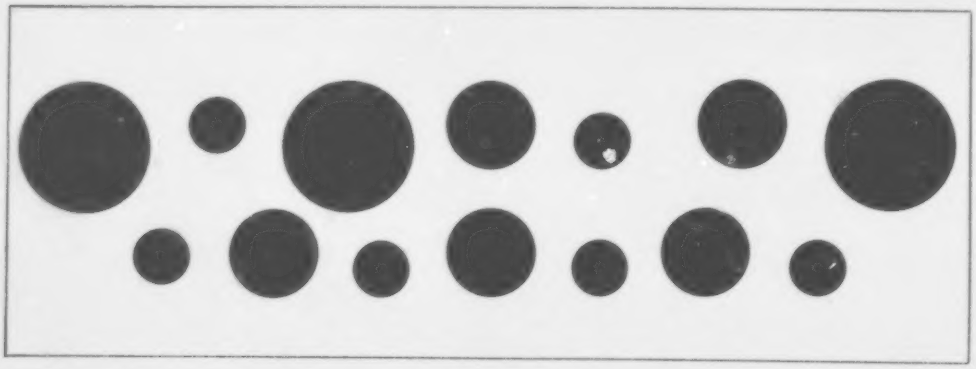
CONSERVATION - DOTS (continued)



Card 3

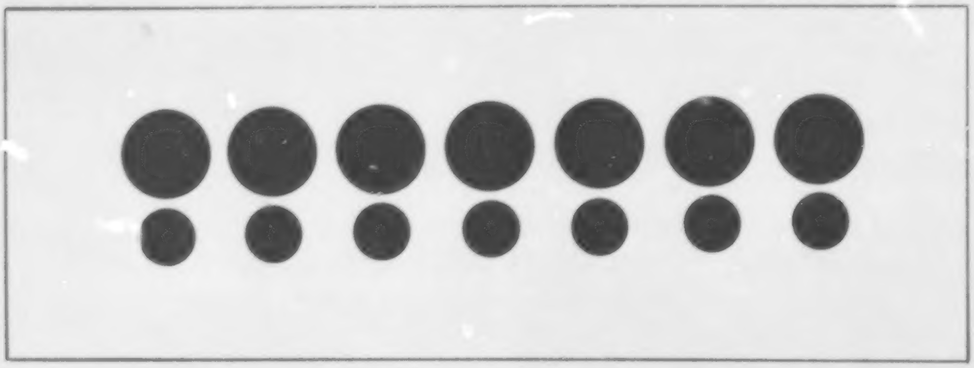


Card 4



Card 5

CONSERVATION - DOTS (continued)



Card 6

TEST DIRECTIONS:

Place Card 1 in front of the child. The top of the card, as noted on the back, should be on the tester's side.

Say to the child:

ON THIS CARD THERE ARE TWO ROWS OF DOTS. HERE (running your finger along the row nearer you) IS THE TOP ROW, AND HERE (running your finger along the row nearer the child) IS THE BOTTOM ROW. ARE THERE MORE DOTS IN THE TOP ROW, OR ARE THERE MORE DOTS IN THE BOTTOM ROW, OR IS THERE THE SAME NUMBER OF DOTS IN EACH ROW?

If the child does not respond, say:

WHICH ROW HAS MORE DOTS, THE ONE ON TOP OR THE ONE ON THE BOTTOM? (pause) POINT TO THE ROW WITH MORE DOTS.

On this and the succeeding cards in this task allow the child to point to his choice if he wishes to.

Replace Card 1 with Card 2, again making sure it is oriented correctly.

This time say:

CONSERVATION - DOTS (continued)

WHICH ROW ON THIS CARD HAS MORE DOTS? (pause) DOES THE TOP ROW HAVE MORE DOTS, OR DOES THE BOTTOM ROW HAVE MORE DOTS, OR DO THEY BOTH HAVE THE SAME NUMBER?

This time, if the child does not respond, go on to Card 3 and continue through Card 6 asking the same question each time.

In scoring these items, put a check mark in the left-hand column if the child asserts that there are more dots in the top row than in the bottom row, a check mark in the second column if the child asserts there are more dots in the bottom row than in the top row, a check mark in the third column if the child asserts there are the same number of dots in each row, and a check mark in the last column if the child does not respond.

Conservation - Dots

Item No.	Card No.	Child asserts more dots in TOP row	Child asserts more dots in BOTTOM row	Child asserts same number dots each row	No Attempt
154.	1				
155.	2				
156.	3				
157.	4				
158.	5				
159.	6				

Tester's Scoring Grid

Only the correct response for each item is scored as correct.

RESPONSE TO VERBAL DIRECTIONS

Item No.

160.

No compliance. Did not do what was asked. ☐

Little compliance. Did not do what was asked in most instances unless controls used. ☐

Some compliance. Did (or tried to do) what was asked in some tasks. ☐

Full compliance. Did exactly (or tried to do) what was asked on each task. ☐

Tester's Scoring Grid

ATTENTION TO TASKS

Item No.		
161.	Attended well to all tasks.	☐
	Attended well to some tasks but not all.	☐
	Attention wandered periodically.	☐
	Inattentive unless continually directed.	☐

Tester's Scoring Grid

DESCRIPTION AND STATISTICAL PROPERTIES OF SCALES - FALL

SCORING THE KINDERGARTEN FALL SCALES

A coding scheme was developed for the pupil score sheets which covered all the responses encountered on at least a small number of score sheets. The categories used for coding most of the scales were:

> Incorrect Response
>
> Some tests were to be stopped after the child made a total of three errors. Where testing was discontinued for this reason, all subsequent items for that child were scored as incorrect responses.
>
> Correct Response
>
> Omissions by Tester
>
> Not checked by tester, or more than one response checked by tester, or incomplete information given by tester, or contradiction between score and comment by tester. A contradiction was not scored as an omission by tester if the tester's comment showed he misunderstood the scoring criteria and if it was possible to determine the appropriate score from the comments.
>
> Multiple Responses Given by Child or Child was Confused
>
> No Answer Given by Child
>
> No attempt by child or child says he doesn't know, or verbal responses are given such as "no," "what does that mean," etc.

As a first step in the data analysis, response frequencies for each code were computed for each item for each of the seven sub-samples and for the total sample. A careful study was made of the "omission by tester" responses in the sub-populations since these occurred fairly frequently for some items. No socioeconomic bias was evident in testers' omissions. For further statistical analyses all response categories other than the correct response were grouped together and treated as incorrect. (The category "multiple or confused responses by child" occurred infrequently.)

For some of the tests, codes were assigned for partially correct responses (Visual Memory, Classifying, and Rote Counting). The partially correct responses were used to construct weighted scores for some scales, but since these scores did not yield more information in statistical analyses than a simple score based on only a correct response, these data have been excluded from the scale descriptions.

Initially an attempt was made to code qualitative responses to items in some tests (e.g., Equivalent Sets, Classifying), but it was found that not enough information was given by many of the testers to permit an unambiguous coding scheme to be constructed. Testers' comments for specific tests were finally used only to aid in determining the correct coding for a child. Thus, if a tester described a child's response but gave no score, the response was coded if the description was clear enough to permit the assignment of a code. Otherwise, the category "ommission by tester," was assigned. (See also the previous discussion of criteria for coding "omission by tester.")

A validity code based on testers' comments was assigned for each test. Only comments which applied to the whole test (or most of the test) were used in determining the validity score. A three-point scale was used with "1" denoting a valid test. The score "2" was given to tests which had some comments indicating questionable validity but which were judged to provide an adequate measure of the child's knowledge. Tests that were to be excluded from the sample as being invalid were given a "3" rating. A total of 22 tests were rated "3" and excluded from the sample. Ratings of questionable validity or invalidity were usually based on comments that the child did not understand English or that the child had emotional problems which interfered with his performance during the test. A few exclusions of tests were based on factors such as the child was mentally retarded or that the child was repeating kindergarten.

The actual scale score used in calculating the statistics reported in this report for most of the scales is the sum of correct responses for all items within the scale. Exceptions to this are: the Classifying scale which gives full credit for a partially correct response on some items, and the scales Rote Counting, Attention to Tasks, and Response to Verbal Directions, which use different scoring systems. (The scoring is described in the specific section for these scales in the report.)

001 GEOMETRIC SHAPES - MATCHING (4 items)

The Matching portion of the Geometric Shapes test is designed to measure the child's ability to identify identical geometric shapes perceptually. Knowledge of names of geometric shapes is measured in scales 002 and 003.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 1 - 4 Pages 13 - 14

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 3.821
STANDARD DEVIATION = 0.602
CRONBACH'S ALPHA = 0.710
ERROR OF MEASUREMENT = 0.324

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
1	0.983	0.983	1.190	0.0
2	0.927	0.927	1.038	0.0
3	0.974	0.974	1.311	0.0
4	0.936	0.936	1.273	0.0

002 GEOMETRIC SHAPES - NAMING (4 items)

The Naming portion of this task requires the child to give names to simple geometric shapes. Accurate performance on these items depends upon the child's experience in having a particular label consistently attached to a particular shape and on being able to say that word when the appropriate perceptual stimulus is presented. The Naming section of the test was always given before the Identifying section so that the child would have to provide the shape names. Ability to match geometric shapes is measured in 001; ability to identify geometric shapes is measured in 003. Scale 002 is the same as 101.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page reference are listed below.

Items 5 - 8 Page 15

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 1.335
STANDARD DEVIATION = 1.159
CRONBACH'S ALPHA = 0.583
ERROR OF MEASUREMENT = 0.749

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
5	0.492	0.494	0.503	0.343
6	0.252	0.252	0.578	0.086
7	0.074	0.074	0.594	0.343
8	0.518	0.521	0.456	0.601

003 GEOMETRIC SHAPES - IDENTIFYING (4 items)

The Identifying portion of Geometric Shapes requires the child to identify and select a shape requested by name from a displayed set. This task demands, in addition to having the particular shape name attached to certain perceptual stimuli, that the child "keep in mind" the requested object while scanning the presented set to locate the appropriate object, whose only property differentiating it from the others is its shape. Ability to match geometric shapes is measured in 001; ability to name geometric shapes is measured in 002. Scale 003 is the same as 103 and 201 although a slightly different procedure of administration was used for them.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page reference are listed below.

Items 9 - 12 Page 16

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 2.389
STANDARD DEVIATION = 1.282
CRONBACH'S ALPHA = 0.655
ERROR OF MEASUREMENT = 0.753

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
9	0.550	0.551	0.602	0.172
10	0.353	0.354	0.582	0.258
11	0.848	0.851	0.579	0.343
12	0.638	0.643	0.571	0.858

004 COUNTING BUTTONS (7 items)

Cardinal counting ability is assessed in this scale by asking the child to count out a specified number of buttons from a larger set of buttons provided him. A different method of assessing cardinal counting is used in scale 006. Scale 004 is the same as 105; it is an extension of 027.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 13 - 19 Pages 17 - 18

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 7
MEAN TOTAL SCORE = 4.221
STANDARD DEVIATION = 2.610
CRONBACH'S ALPHA = 0.903
ERROR OF MEASUREMENT = 0.812

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
13	0.870	0.870	0.776	0.0
14	0.665	0.665	0.919	0.0
15	0.689	0.690	0.948	0.086
16	0.581	0.655	0.953	11.330
17	0.489	0.640	0.970	23.519
18	0.498	0.760	0.996	34.506
19	0.428	0.743	0.933	42.318

005 WRITING NUMERALS (7 items)

This scale measures the child's ability to write numerals. The child is asked to write the numeral which shows how many buttons are in a box. This scale is the same as 107.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page reference are listed below.

Items 20 - 26 Page 19

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 7
MEAN TOTAL SCORE = 0.961
STANDARD DEVIATION = 1.846
CRONBACH'S ALPHA = 0.889
ERROR OF MEASUREMENT = 0.616

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
20	0.220	0.220	0.868	0.258
21	0.148	0.148	0.987	0.343
22	0.177	0.179	1.033	1.459
23	0.134	0.442	1.164	69.700
24	0.136	0.685	1.284	80.086
25	0.088	0.551	1.275	84.120
26	0.059	0.463	1.248	87.210

006 COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (8 items)

Cardinal counting ability is assessed in this scale by requiring the child to count the number of members in a set (pictures of familiar objects on a card). The pictures are arranged in symmetric patterns on some cards and asymmetric patterns on others. This scale is similar to scale 111 except that pictures of objects are used here rather than objects. Another method of assessing cardinal counting is used for scale 106. Scale 006 is the same as 109 and 203; it is an extension of 026.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 27 - 34 Pages 20 - 25

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 3.933
STANDARD DEVIATION = 2.937
CRONBACH'S ALPHA = 0.895
ERROR OF MEASUREMENT = 0.952

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
27	0.740	0.742	0.747	0.258
28	0.451	0.451	0.692	0.086
29	0.609	0.612	0.897	0.343
30	0.496	0.610	0.874	18.712
31	0.536	0.792	0.966	32.361
32	0.406	0.671	0.897	39.485
33	0.366	0.676	0.920	45.923
34	0.330	0.703	0.906	53.133

007 IDENTIFICATION OF NUMERALS (8 items)

This scale measures the child's ability to identify numerals. The task requires the child to locate the envelope with the appropriate numeral printed on it when the tester requests, by numeral name, the envelope with a particular number of buttons inside. This scale is the same as 112.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 35 - 42 Pages 26 - 27

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 4.282
STANDARD DEVIATION = 3.064
CRONBACH'S ALPHA = 0.920
ERROR OF MEASUREMENT = 0.866

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
35	0.685	0.686	0.932	0.086
36	0.743	0.743	0.860	0.0
37	0.629	0.630	0.978	0.172
38	0.589	0.718	1.013	18.026
39	0.475	0.678	0.942	29.957
40	0.412	0.652	0.957	36.824
41	0.455	0.799	1.028	43.090
42	0.294	0.570	0.822	48.498

008 VISUAL MEMORY - OBJECTS (5 items)

This scale measures visual memory for familiar objects. The child is shown a set of four objects. One object is removed while the child has his eyes closed. He must then recall which object was taken away. This scale is similar to 017 Visual Memory - Pictures, except that objects are used here while pictures are used in scale 017. Scale 008 is the same as 114.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 43 - 47 Pages 28 - 30

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 5
MEAN TOTAL SCORE = 3.197
STANDARD DEVIATION = 1.276
CRONBACH'S ALPHA = 0.432
ERROR OF MEASUREMENT = 0.962

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
43	0.840	0.841	0.402	0.086
44	0.626	0.627	0.336	0.172
45	0.578	0.579	0.236	0.258
46	0.709	0.710	0.254	0.086
47	0.445	0.446	0.285	0.258

010 VOCABULARY (INDIVIDUAL) (20 items)

This scale measures understanding of the vocabulary basic to beginning mathematical concepts and relationships. Understanding is measured either by the child's ability to manipulate blocks to illustrate the words asked or by his ability to recognize relationships of blocks manipulated by the tester. This scale is an extension of 011.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 48 - 67 Pages 31 - 38

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 20
MEAN TOTAL SCORE = 14.571
STANDARD DEVIATION = 3.065
CRONBACH'S ALPHA = 0.685
ERROR OF MEASUREMENT = 1.720

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
48	0.950	0.951	0.574	0.086
49	0.526	0.527	0.401	0.086
50	0.864	0.867	0.606	0.343
51	0.583	0.583	0.459	0.086
52	0.550	0.552	0.461	0.343
53	0.943	0.947	0.386	0.343
54	0.761	0.770	0.399	1.202
55	0.723	0.725	0.056	0.343
56	0.857	0.861	0.458	0.515
57	0.516	0.517	0.153	0.258
58	0.296	0.297	0.247	0.258
59	0.475	0.479	0.331	0.858
60	0.828	0.830	0.515	0.258
61	0.652	0.655	0.314	0.343
62	0.827	0.828	0.496	0.172
63	0.932	0.933	0.507	0.086
64	0.921	0.923	0.446	0.172
65	0.670	0.671	0.274	0.258
66	0.754	0.755	0.498	0.172
67	0.943	0.952	0.481	0.944

Kindergarten
Fall

Form K-01
Scale 011

011 VOCABULARY (INDIVIDUAL) S (15 items)

This scale includes selected items from scale 010. These items are 49 through 52, 54 through 62, 65 and 66. It is the same as 116.

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 15
MEAN TOTAL SCORE = 10.070
STANDARD DEVIATION = 2.619
CRONBACH'S ALPHA = 0.625
ERROR OF MEASUREMENT = 1.604

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
49	0.526	0.527	0.388	0.086
50	0.864	0.867	0.541	0.343
51	0.583	0.583	0.437	0.086
52	0.550	0.552	0.430	0.343
54	0.760	0.769	0.373	1.202
55	0.723	0.725	0.064	0.343
56	0.856	0.860	0.417	0.515
57	0.516	0.517	0.152	0.258
58	0.296	0.297	0.259	0.258
59	0.475	0.479	0.329	0.858
60	0.828	0.830	0.504	0.258
61	0.653	0.655	0.326	0.343
62	0.827	0.828	0.403	0.172
65	0.670	0.672	0.276	0.258
67	0.943	0.952	0.422	0.944

012 EQUIVALENT SETS - DOTS (6 items)

The concept of equivalence of sets is tested separately from the other mathematical concepts covered by 010. It is tested by requesting the child to form a set of buttons equivalent to that represented by a group of pictured dots on a card. Patterning of the dots is symmetrical on some cards and asymmetrical on others. This scale is the same as 119 and 205.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 68, 70, 72, 74, 76, 78 Pages 39 - 43

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 6
MEAN TOTAL SCORE = 3.052
STANDARD DEVIATION = 2.155
CRONBACH'S ALPHA = 0.840
ERROR OF MEASUREMENT = 0.862

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
68	0.473	0.474	0.659	0.258
70	0.706	0.707	0.869	0.172
72	0.584	0.587	0.853	0.601
74	0.468	0.610	0.755	23.262
76	0.552	0.809	0.943	31.760
78	0.270	0.447	0.669	39.485

013 ORDINAL NUMBER (8 items)

This scale is designed to measure the child's knowledge of ordinal number. The child is asked to place marbles in specified (e.g., second) toy trucks which are lined up in front of him. This scale is the same as 120.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 80 - 87 Pages 44 - 45

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 3.534
STANDARD DEVIATION = 1.799
CRONBACH'S ALPHA = 0.597
ERROR OF MEASUREMENT = 1.142

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
80	0.817	0.819	0.483	0.172
81	0.221	0.222	0.434	0.086
82	0.105	0.105	0.606	0.086
83	0.690	0.691	0.063	0.172
84	0.448	0.450	0.511	0.515
85	0.533	0.535	0.417	0.429
86	0.501	0.510	0.407	1.631
87	0.218	0.224	0.470	2.747

014 ORDERING GEOMETRIC SHAPES (2 items)

This scale measures the child's ability to arrange similar geometric shapes in order of size from the smallest to the largest and from the largest to the smallest. This scale is the same as 125 and 208.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 89, 92 Pages 46 - 51

SCALE STATISTICS:

NUMBER OF CASES = 1160
NUMBER OF ITEMS = 2
MEAN TOTAL SCORE = 0.797
STANDARD DEVIATION = 0.856
CRONBACH'S ALPHA = 0.692
ERROR OF MEASUREMENT = 0.475

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
89	0.402	0.404	0.670	0.517
92	0.395	0.396	0.671	0.345

015 CLASSIFYING (9 items)

This scale requires the child to form classes based on size, shape, or color and on combinations of these attributes (e.g., red triangles, smallest circle, all shapes the same size). In addition, for two items the child is required to state which of two classes has more members after he has constructed the classes. This scale is the same as 128.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 88, 90, 91, 93 - 98   Pages 52 - 65

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 9
MEAN TOTAL SCORE = 4.113
STANDARD DEVIATION = 2.015
CRONBACH'S ALPHA = 0.686
ERROR OF MEASUREMENT = 1.130

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
88	0.804	0.805	0.583	0.086
90	0.856	0.870	0.475	1.631
91	0.426	0.427	0.497	0.258
93	0.099	0.099	0.439	0.0
94	0.252	0.253	0.475	0.515
95	0.789	0.798	0.581	1.116
96	0.233	0.233	0.500	0.343
97	0.367	0.368	0.502	0.343
98	0.289	0.292	0.474	0.773

016 ROTE COUNTING (1 item)

This scale is designed to measure how far the child is able to count consecutively starting from 1 up to a maximum of 100.

The item which makes up this scale comes from Form K-01 which is reproduced elsewhere in this report. The item number and page references are listed below.

Item 99 Pages 66 - 67

NUMBERS COUNTED CORRECTLY	PERCENT	SAMPLE SIZE
0 - 9	21.2	1160
10 - 19	46.9	
20 - 29	13.5	
30 - 39	7.8	
40 - 49	2.4	
50 - 59	1.0	
60 - 69	0.7	
70 or above	3.8	
No attempt	2.7	

017 VISUAL MEMORY - PICTURES (4 items)

This scale measures visual memory for pictured objects. The child is shown a page with four or five drawings of familiar objects on it. The child is then shown a second page which pictures all but one of the objects on the preceding page. The child must recall which picture is absent on the second page that appeared on the first. If the child cannot recall what picture was taken away, he is then shown page 3 which has a new set of pictures including the one removed. This scale is similar to 008 Visual Memory: Objects, except that pictures are used here while objects are used in 008. Scale 017 is the same as 131.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 101 - 104 Pages 68 - 77

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 1.068
STANDARD DEVIATION = 1.033
CRONBACH'S ALPHA = 0.384
ERROR OF MEASUREMENT = 0.811

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
101	0.227	0.228	0.281	0.086
102	0.346	0.347	0.314	0.258
103	0.332	0.334	0.244	0.429
104	0.162	0.163	0.305	0.687

019 COLOR - MATCHING (6 items)

The Matching portion of the color tests is designed to measure the child's perceptual ability to match colors. Knowledge of color names is measured in 020 and 021.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 105 - 110 Pages 78 - 79

```
SCALE STATISTICS:

  NUMBER OF CASES        =   1165
  NUMBER OF ITEMS        =      6
  MEAN TOTAL SCORE       =  5.861
  STANDARD DEVIATION     =  0.583
  CRONBACH'S ALPHA       =  0.722
  ERROR OF MEASUREMENT   =  0.307

ITEM STATISTICS:

  ITEM       P'S        ADJ. P'S          N.S. BIS      PERCENT NT

  105        0.955        0.956            1.150          0.172
  106        0.982        0.982            1.604          0.0
  107        0.985        0.985            1.259          0.086
  108        0.974        0.975            1.270          0.086
  109        0.980        0.980            1.440          0.0
  110        0.985        0.989            1.134          0.343
```

020 COLOR - NAMING (7 items)

The Naming portion of this task requires the child to give names to the colors on the cards. Accurate performance on these items depends upon the child's experience in having a particular label consistently attached to a particular color and on being able to say that word when the appropriate perceptual stimulus is presented. The Naming section of the test was always given before the Identifying section so that a child would have to provide the color names. Ability to match colors is measured in 019; ability to identify colors is measured in 021.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page reference are listed below.

Items 111 - 117 Page 80

SCALE STATISTICS:

NUMBER OF CASES = 1165
NUMBER OF ITEMS = 7
MEAN TOTAL SCORE = 5.748
STANDARD DEVIATION = 1.934
CRONBACH'S ALPHA = 0.849
ERROR OF MEASUREMENT = 0.752

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
111	0.858	0.859	0.686	0.172
112	0.769	0.770	0.929	0.086
113	0.844	0.847	0.971	0.343
114	0.882	0.887	0.836	0.601
115	0.795	0.797	0.898	0.258
116	0.811	0.812	1.017	0.086
117	0.790	0.793	0.921	0.429

021 COLOR - IDENTIFYING (6 items)

The Identifying portion of the Color test requires the child to identify and select a color requested by name from a displayed set. This task demands, in addition to having the particular color name attached to certain perceptual stimuli, that the child "keep in mind" the requested color while scanning the presented set to locate the appropriate color. Ability to match colors is measured in 019; ability to name colors is measured in 020.

The items which make up this scale come from Form K-01 which is reproduced elsewhere in this report. The item numbers and page reference are listed below.

Items 118 - 123 Page 81

SCALE STATISTICS:

NUMBER OF CASES = 1160
NUMBER OF ITEMS = 6
MEAN TOTAL SCORE = 5.131
STANDARD DEVIATION = 1.671
CRONBACH'S ALPHA = 0.883
ERROR OF MEASUREMENT = 0.571

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
118	0.889	0.889	1.099	0.0
119	0.885	0.887	1.004	0.172
120	0.826	0.827	1.102	0.086
121	0.884	0.885	1.042	0.086
122	0.833	0.834	1.131	0.172
123	0.814	0.822	1.102	0.948

022 RESPONSE TO VERBAL DIRECTIONS (1 item)

This is a tester rating based on the child's compliance behavior during the test. This scale measures the child's compliance or attempted compliance with the directions given by the tester. This scale is the same as 143, 212, and 317.

The item which makes up this scale comes from Form K-01 which is reproduced elsewhere in this report. The item number and page reference are listed below.

Item 124 Page 82

TESTER RATING	PERCENT	SAMPLE SIZE
No compliance	0.4	1160
Little compliance	5.1	
Some compliance	26.1	
Full compliance	66.6	
No rating	1.8	

023 ATTENTION TO TASKS (1 item)

This is a tester rating based on the child's attentiveness to the tasks presented in the test. This scale is the same as 144, 213, and 318.

The item which makes up this scale comes from Form K-01 which is reproduced elsewhere in this report. The item number and page reference are listed below.

Item 125 Page 83

TESTER RATING	PERCENT	SAMPLE SIZE
Attended well to all tasks	58.3	1160
Attended well to some tasks	19.0	
Attention wandered periodically	14.6	
Inattentive	6.1	
No rating	1.9	

Kindergarten
Fall

Form K-01
Scale 026

026 COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS S (6 items)

This scale includes selected items from scale 006. These items are 28 through 30, and 32 through 34. It is the same as 151, 216, and 324.

SCALE STATISTICS:

NUMBER OF CASES	=	1165
NUMBER OF ITEMS	=	6
MEAN TOTAL SCORE	=	2.658
STANDARD DEVIATION	=	2.275
CRONBACH'S ALPHA	=	0.868
ERROR OF MEASUREMENT	=	0.825

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
28	0.451	0.451	0.669	0.086
29	0.609	0.612	0.835	0.343
30	0.496	0.610	0.847	18.712
32	0.406	0.671	0.890	39.485
33	0.366	0.676	0.933	45.923
34	0.330	0.703	0.919	53.133

027 COUNTING BUTTONS S (5 items)

This scale includes selected items from scale 004. These items are 14, and 16 through 19. It is the same as 153 and 326.

```
SCALE STATISTICS:

  NUMBER OF CASES        =    1165
  NUMBER OF ITEMS        =       5
  MEAN TOTAL SCORE       =   2.662
  STANDARD DEVIATION     =   2.081
  CRONBACH'S ALPHA       =   0.901
  ERROR OF MEASUREMENT   =   0.656

ITEM STATISTICS:

  ITEM        P'S         ADJ. P'S          M.S. BIS      PERCENT NT

   14        0.665         0.665             0.862          0.0
   16        0.581         0.655             0.934         11.330
   17        0.489         0.640             0.987         23.519
   18        0.498         0.760             1.015         34.506
   19        0.428         0.743             0.960         42.318
```

DESCRIPTION AND STATISTICAL PROPERTIES OF SCALES - SPRING

SCORING THE SPRING KINDERGARTEN SCALES

The coding scheme used and the data analysis procedure for the Spring Kindergarten scales is exactly the same as that used for the Fall scales. Refer to pages 253 and 254 to see these. Any exception or addition to the coding scheme for a scale is noted under the tester's scoring grid for that scale.

Kindergarten
Spring

Form K-02Y
Scale 101

101 GEOMETRIC SHAPES - NAMING S (4 items; 1/4 of population)

This scale includes selected items from 102. These items are 1, 3, 4 and 5. Scale 101 is the same as 002.

SCALE STATISTICS:

NUMBER OF CASES = 285
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 3.253
STANDARD DEVIATION = 1.015
CRONBACH'S ALPHA = 0.598
ERROR OF MEASUREMENT = 0.644

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
1	0.961	0.961	0.445	0.0
3	0.835	0.835	0.546	0.0
4	0.761	0.761	0.627	0.0
5	0.695	0.695	0.703	0.0

102 GEOMETRIC SHAPES - NAMING (5 items; 1/4 of population)

This scale requires the child to give names to simple geometric shapes. Accurate performance on these items depends upon the child's experience in having a particular label consistently attached to a particular shape and on being able to say that word when the appropriate stimulus is presented. In those cases where a child was given both the Naming and Identifying portion of this test (sub-population Y), the Naming section was always given before the Identifying section so that the child would have to provide the shape names. Ability to identify geometric shapes is measured in 104. Scale 102 is an extension of 101.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 1 - 5 Pages 119 - 120

SCALE STATISTICS:

NUMBER OF CASES = 285
NUMBER OF ITEMS = 5
MEAN TOTAL SCORE = 4.207
STANDARD DEVIATION = 1.038
CRONBACH'S ALPHA = 0.539
ERROR OF MEASUREMENT = 0.704

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
1	0.958	0.958	0.564	0.0
2	0.958	0.958	-0.077	0.0
3	0.835	0.835	0.525	0.0
4	0.761	0.761	0.583	0.0
5	0.695	0.695	0.672	0.0

103 GEOMETRIC SHAPES - IDENTIFYING S (4 items)

This scale includes selected items from 104. These items are 6, 7, 9 and 10. It is the same as 201 and 003 although a slightly different procedure of administration was used in 003.

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 3.467
STANDARD DEVIATION = 0.914
CRONBACH'S ALPHA = 0.633
ERROR OF MEASUREMENT = 0.553

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
6	0.824	0.824	0.677	0.0
7	0.776	0.776	0.905	0.0
9	0.984	0.984	0.383	0.0
10	0.882	0.882	0.746	0.0

104 GEOMETRIC SHAPES - IDENTIFYING (5 items)

The child is required to identify and select a shape requested by name from a displayed set. This task demands, in addition to having the particular shape name attached to certain perceptual stimuli, that the child "keep in mind" the requested object while scanning the present set to locate the appropriate object, whose only property differentiating it from the others is its shape. Ability to name geometric shapes is measured in 101 and 102. Scale 104 is the same as 202. It is an extension of 103.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 6 - 10 Pages 121 - 122

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 5
MEAN TOTAL SCORE = 4.461
STANDARD DEVIATION = 0.925
CRONBACH'S ALPHA = 0.601
ERROR OF MEASUREMENT = 0.584

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
6	0.824	0.824	0.678	0.0
7	0.776	0.776	0.894	0.0
8	0.994	0.994	0.510	0.0
9	0.984	0.984	0.446	0.0
10	0.882	0.882	0.739	0.0

Kindergarten
Spring

Form K-02X
Scale 105

105 COUNTING BUTTONS S-1 (7 items; 1/4 of population)

This scale includes selected items from 106. These items are 71 through 77. It is the same as 004; it is an extension of 153.

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 7
MEAN TOTAL SCORE = 6.247
STANDARD DEVIATION = 1.562
CRONBACH'S ALPHA = 0.856
ERROR OF MEASUREMENT = 0.593

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
71	0.980	0.980	1.271	0.0
72	0.933	0.933	1.146	0.0
73	0.947	0.947	1.326	0.0
74	0.877	0.892	1.187	1.667
75	0.837	0.866	0.983	3.333
76	0.857	0.911	1.117	6.000
77	0.817	0.891	0.982	8.333

106 COUNTING BUTTONS (9 items; 1/4 of population)

Cardinal counting ability is assessed in this scale by asking the child to count out a specified number of buttons from a larger set of buttons provided him. A different method of assessing cardinal counting was used in 110 and 111. Scale 106 is an extension of 105, 153 and 154.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 71 - 79 Pages 123 - 124

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 9
MEAN TOTAL SCORE = 7.693
STANDARD DEVIATION = 2.183
CRONBACH'S ALPHA = 0.878
ERROR OF MEASUREMENT = 0.763

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
71	0.980	0.980	1.177	0.0
72	0.933	0.933	1.080	0.0
73	0.947	0.947	1.232	0.0
74	0.877	0.892	1.207	1.667
75	0.837	0.866	1.008	3.333
76	0.857	0.911	1.097	6.000
77	0.817	0.891	1.060	8.333
78	0.683	0.765	0.779	10.667
79	0.763	0.881	0.982	13.333

107 WRITING NUMERALS S (7 items; 1/4 of population)

This scale includes selected items from 108. These items are 80 through 86. It is the same as 005.

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 7
MEAN TOTAL SCORE = 3.943
STANDARD DEVIATION = 2.372
CRONBACH'S ALPHA = 0.831
ERROR OF MEASUREMENT = 0.975

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
80	0.627	0.627	0.581	0.0
81	0.627	0.627	0.665	0.0
82	0.667	0.667	0.778	0.0
83	0.610	0.712	0.784	14.333
84	0.657	0.849	0.881	22.667
85	0.430	0.581	0.751	26.000
86	0.327	0.519	0.758	37.000

Kindergarten
Spring

Form K-02X
Scale 108

108 WRITING NUMERALS (9 items; 1/4 of population)

This scale measures the child's ability to write numerals. The child is asked to write the numeral which shows how many buttons are in a box. The scale is an extension of 107.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page reference are listed below.

Items 80 - 88 Page 125

```
SCALE STATISTICS:

  NUMBER OF CASES        =     300
  NUMBER OF ITEMS        =       9
  MEAN TOTAL SCORE       =   4.560
  STANDARD DEVIATION     =   3.007
  CRONBACH'S ALPHA       =   0.871
  ERROR OF MEASUREMENT   =   1.081
```

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
80	0.627	0.627	0.618	0.0
81	0.627	0.627	0.674	0.0
82	0.667	0.667	0.760	0.0
83	0.610	0.712	0.778	14.333
84	0.657	0.849	0.855	22.667
85	0.430	0.581	0.774	26.000
86	0.327	0.519	0.830	37.000
87	0.280	0.556	0.853	49.667
88	0.337	0.795	0.905	57.667

109 COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS S-1 (8 items)

This scale includes selected items from 110. These items are 16 through 23. It is the same as 006 and 203; it is an extension of 151.

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 5.733
STANDARD DEVIATION = 2.375
CRONBACH'S ALPHA = 0.837
ERROR OF MEASUREMENT = 0.959

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
16	0.926	0.926	0.734	0.0
17	0.659	0.659	0.577	0.0
18	0.841	0.841	0.832	0.0
19	0.732	0.753	0.761	2.700
20	0.784	0.867	0.926	9.536
21	0.640	0.752	0.834	14.937
22	0.602	0.759	0.825	20.675
23	0.550	0.749	0.800	26.498

110 COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS (10 items)

Cardinal counting ability is assessed in this scale by requiring the child to count the number of members in a set (pictures of familiar objects on a card). The pictures are arranged in symmetric patterns on some cards and asymmetric patterns on others. This scale is similar to 111 except that pictures of objects are used here rather than objects. Another method of assessing cardinal counting is used for 106. Scale 110 is the same as 204; it is an extension of 109, 151, and 152.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 16 - 25 Pages 126 - 132

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 10
MEAN TOTAL SCORE = 6.432
STANDARD DEVIATION = 2.914
CRONBACH'S ALPHA = 0.855
ERROR OF MEASUREMENT = 1.108

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	R.S. BIS	PERCENT NT
16	0.926	0.926	0.701	0.0
17	0.659	0.659	0.591	0.0
18	0.841	0.841	0.812	0.0
19	0.732	0.753	0.751	2.700
20	0.784	0.867	0.892	9.536
21	0.640	0.752	0.845	14.937
22	0.602	0.759	0.849	20.675
23	0.550	0.749	0.852	26.498
24	0.422	0.627	0.732	32.658
25	0.277	0.457	0.612	39.494

111 COUNTING MEMBERS OF A GIVEN SET - OBJECTS (10 items)

This scale is designed to measure ability to count members of sets of objects. It is similar to 110 except that objects are used here instead of pictures. A different method for assessing cardinal counting is used in 106.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 26 - 35 Pages 133 - 135

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 10
MEAN TOTAL SCORE = 7.334
STANDARD DEVIATION = 2.737
CRONBACH'S ALPHA = 0.855
ERROR OF MEASUREMENT = 1.043

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
26	0.944	0.944	0.787	0.0
27	0.832	0.833	0.718	0.084
28	0.859	0.859	0.745	0.0
29	0.784	0.800	0.792	2.025
30	0.843	0.894	0.945	5.654
31	0.733	0.805	0.838	8.861
32	0.720	0.827	0.915	12.996
33	0.670	0.821	0.905	18.397
34	0.511	0.659	0.692	22.363
35	0.437	0.609	0.662	28.270

112 IDENTIFICATION OF NUMERALS S (8 items; 1/4 of population)

This scale includes selected items from 113. These items are 89 through 96. It is the same as 007.

SCALE STATISTICS:

NUMBER OF CASES = 295
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 7.122
STANDARD DEVIATION = 1.766
CRONBACH'S ALPHA = 0.874
ERROR OF MEASUREMENT = 0.628

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
89	0.953	0.953	1.336	0.0
90	0.976	0.980	1.033	0.339
91	0.936	0.936	1.540	0.0
92	0.929	0.938	1.348	1.017
93	0.922	0.958	1.334	3.729
94	0.817	0.867	1.019	5.763
95	0.858	0.923	1.153	7.119
96	0.732	0.791	0.807	7.458

Kindergarten
Spring

Form K-02X
Scale 113

113 IDENTIFICATION OF NUMERALS (10 items; 1/4 of population)

This scale measures the child's ability to identify numerals. The task requires the child to locate the envelope with the appropriate numeral printed on it when the tester requests, by numeral name, the envelope with a particular number of buttons inside. This scale is an extension of 112.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 89 - 98 Pages 136 - 137

SCALE STATISTICS:

NUMBER OF CASES = 295
NUMBER OF ITEMS = 10
MEAN TOTAL SCORE = 8.525
STANDARD DEVIATION = 2.441
CRONBACH'S ALPHA = 0.896
ERROR OF MEASUREMENT = 0.786

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
89	0.953	0.953	1.230	0.0
90	0.976	0.980	0.988	0.339
91	0.936	0.936	1.384	0.0
92	0.929	0.938	1.262	1.017
93	0.922	0.958	1.237	3.729
94	0.817	0.867	1.062	5.763
95	0.858	0.923	1.113	7.119
96	0.732	0.791	0.956	7.458
97	0.722	0.822	1.008	12.203
98	0.681	0.824	0.919	17.288

114 VISUAL MEMORY - OBJECTS (5 items; 1/4 of population)

This scale measures visual memory for familiar objects. The child is shown a set of four objects. One objects is removed while the child has his eyes closed. He must recall which object was taken away. This scale is similar to scales 131 Visual Memory - Pictures, 133 Visual Memory - Picture Cards, and 135 Visual Memory - Shapes. Scale 114 is the same as 008.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 11 - 15 Pages 138 - 142

SCALE STATISTICS:

NUMBER OF CASES = 305
NUMBER OF ITEMS = 5
MEAN TOTAL SCORE = 3.548
STANDARD DEVIATION = 1.118
CRONBACH'S ALPHA = 0.286
ERROR OF MEASUREMENT = 0.945

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
11	0.885	0.888	0.339	0.328
12	0.725	0.729	0.251	0.656
13	0.616	0.618	0.052	0.328
14	0.764	0.764	0.225	0.0
15	0.557	0.557	0.146	0.0

116 VOCABULARY (INDIVIDUAL) S (15 items; 1/4 of population)

This scale includes selected items from 117. These items are 99 through 104, 106 through 109, 111, 113 through 115, and 117. It is the same as scale 011.

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 15
MEAN TOTAL SCORE = 12.013
STANDARD DEVIATION = 2.556
CRONBACH'S ALPHA = 0.716
ERROR OF MEASUREMENT = 1.361

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
99	0.820	0.820	0.539	0.0
100	0.960	0.960	0.646	0.0
101	0.803	0.803	0.696	0.0
102	0.797	0.797	0.521	0.0
103	0.867	0.867	0.516	0.0
104	0.930	0.930	0.066	0.0
106	0.930	0.939	0.581	1.000
107	0.543	0.547	0.371	0.667
108	0.600	0.604	0.569	0.667
109	0.720	0.722	0.332	0.333
111	0.883	0.883	0.653	0.0
113	0.677	0.679	0.389	0.333
114	0.923	0.923	0.623	0.0
115	0.700	0.700	0.366	0.0
117	0.860	0.860	0.595	0.0

117 VOCABULARY (INDIVIDUAL) (19 items; 1/4 of population)

This scale measures understanding of the vocabulary basic to beginning mathematical concepts and relationships. Understanding is measured either by the child's ability to manipulate blocks to illustrate the words asked or by his ability to recognize relationships of blocks manipulated by the tester. This scale is an extension of 116.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 99 - 117 Pages 143 - 152

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 19
MEAN TOTAL SCORE = 15.130
STANDARD DEVIATION = 3.165
CRONBACH'S ALPHA = 0.758
ERROR OF MEASUREMENT = 1.556

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
99	0.820	0.820	0.518	0.0
100	0.960	0.960	0.699	0.0
101	0.803	0.803	0.715	0.0
102	0.797	0.797	0.554	0.0
103	0.867	0.867	0.571	0.0
104	0.930	0.930	0.184	0.0
105	0.883	0.883	0.459	0.0
106	0.930	0.939	0.599	1.000
107	0.543	0.547	0.430	0.667
108	0.600	0.604	0.589	0.667
109	0.720	0.722	0.353	0.333
110	0.853	0.853	0.361	0.0
111	0.883	0.883	0.609	0.0
112	0.683	0.683	0.600	0.0
113	0.677	0.679	0.349	0.333
114	0.923	0.923	0.664	0.0
115	0.700	0.700	0.336	0.0
116	0.697	0.697	0.383	0.0
117	0.860	0.860	0.582	0.0

118 EQUIVALENT SETS - OBJECTS (6 items)

This scale is designed to measure understanding of the same concept (equivalence of sets) measured in 119; however, in this scale objects rather than pictured dots are used as test materials.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 40 - 45 Pages 153 - 157

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 6
MEAN TOTAL SCORE = 4.294
STANDARD DEVIATION = 1.958
CRONBACH'S ALPHA = 0.839
ERROR OF MEASUREMENT = 0.785

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
40	0.750	0.750	0.757	0.0
41	0.868	0.868	1.038	0.0
42	0.676	0.676	0.761	0.0
43	0.741	0.819	0.924	9.536
44	0.744	0.879	1.001	15.359
45	0.514	0.634	0.663	18.987

119 EQUIVALENT SETS - DOTS (6 items)

The concept of equivalence of sets is tested separately from the other mathematical concepts covered in 117. It is tested by requesting the child to form a set of buttons equivalent to that represented by a group of pictured dots on a card. Patterning of the dots is symmetrical on some cards and asymmetrical on others. This scale is similar to 118 except that pictures of dots are used rather than objects. Scale 119 is the same as 012 and 205.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 46 - 51 Pages 158 - 162

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 6
MEAN TOTAL SCORE = 4.776
STANDARD DEVIATION = 1.635
CRONBACH'S ALPHA = 0.792
ERROR OF MEASUREMENT = 0.747

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
46	0.821	0.821	0.734	0.0
47	0.929	0.929	1.132	0.0
48	0.835	0.835	0.856	0.0
49	0.754	0.793	0.774	4.810
50	0.841	0.911	1.003	7.679
51	0.595	0.666	0.594	10.717

120 ORDINAL NUMBER (8 items; 1/4 of population)

This scale is designed to measure the child's knowledge of ordinal number. The child is asked to place marbles in specified (e.g., second) toy trucks which are lined up in front of him. This scale is the same as 013.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 130 - 137   Pages 163 - 164

SCALE STATISTICS:

NUMBER OF CASES = 285
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 5.509
STANDARD DEVIATION = 2.024
CRONBACH'S ALPHA = 0.748
ERROR OF MEASUREMENT = 1.015

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
130	0.968	0.968	0.572	0.0
131	0.453	0.453	0.799	0.0
132	0.404	0.404	0.870	0.0
133	0.853	0.853	0.689	0.0
134	0.737	0.737	0.681	0.0
135	0.821	0.821	0.422	0.0
136	0.768	0.768	0.655	0.0
137	0.505	0.505	0.774	0.0

121 ORDERING OBJECTS (3 items)

This scale measures ability to arrange sets of similar objects in order of size from the smallest to the largest and from the largest to the smallest. It is similar to scales 126 and 123 except that objects are used rather than shapes (126) or pictures of objects (123). Two other scales, 137 and 139, also measure ability in ordering but use number as the basis of ordering rather than size. Scale 121 is a part of composite scale 147.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 59, 61, 66 Pages 165 - 169

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 3
MEAN TOTAL SCORE = 1.965
STANDARD DEVIATION = 1.259
CRONBACH'S ALPHA = 0.863
ERROR OF MEASUREMENT = 0.466

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
59	0.681	0.681	0.977	0.0
61	0.684	0.685	0.975	0.084
66	0.600	0.600	0.923	0.0

123 ORDERING PICTURES (3 items)

This scale is designed to measure understanding of the same concepts measured in 121 and 126; however, in this scale pictures of objects and of geometric shapes rather than objects and geometric shapes are used as the test materials. Other ordering scales are: 137 Ordering Sets of Objects and 139 Ordering Pictured Sets, but in those scales ordering is by number rather than by size as in scale 123. Scale 123 is part of composite scale 147.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 63, 64, 70 Pages 170 - 174

```
SCALE STATISTICS:

  NUMBER OF CASES        =     1185
  NUMBER OF ITEMS        =        3
  MEAN TOTAL SCORE       =    1.907
  STANDARD DEVIATION     =    1.309
  CRONBACH'S ALPHA       =    0.896
  ERROR OF MEASUREMENT   =    0.423
```

```
ITEM STATISTICS:

  ITEM        P'S        ADJ. P'S        N.S. BIS      PERCENT NT

   63        0.652        0.655           1.058          0.422
   64        0.673        0.675           1.051          0.169
   70        0.581        0.582           0.954          0.084
```

125, ORDERING GEOMETRIC SHAPES S (2 items)

This scale includes selected items from 126. These items are 56 and 58. It is the same as 014 and 208.

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 2
MEAN TOTAL SCORE = 1.325
STANDARD DEVIATION = 0.889
CRONBACH'S ALPHA = 0.868
ERROR OF MEASUREMENT = 0.323

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
56	0.662	0.662	0.991	0.0
58	0.662	0.662	0.991	0.0

126 ORDERING GEOMETRIC SHAPES (3 items)

This scale measures the child's ability to arrange similar geometric shapes in order of size from the smallest to the largest and from the largest to the smallest. The scale is similar to 121 Ordering Objects and 123 Ordering Pictures, both of which also require ordering by size. Ordering by number is measured in 137 Ordering Sets of Objects and 139 Ordering Pictured Sets. Scale 126 is the same as 209 and is an extension of 125; it is part of composite scale 147.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 56, 58, 68   Pages 175 - 179

```
SCALE STATISTICS:

  NUMBER OF CASES        =    1185
  NUMBER OF ITEMS        =       3
  MEAN TOTAL SCORE       = [illegible].950
  STANDARD DEVIATION     =   1.288
  CRONBACH'S ALPHA       =   0.884
  ERROR OF MEASUREMENT   =   0.439

ITEM STATISTICS:

  ITEM       P'S        ADJ. P'S        H.S. BIS      PERCENT NT

   56       0.662       0.662           1.033          0.0
   58       0.662       0.662           1.018          0.0
   68       0.625       0.626           0.942          0.084
```

128 CLASSIFYING S-1 (9 items; 1/4 of population)

This scale includes selected items from 129. These items are 57, and 118 through 125. It is the same as 015.

SCALE STATISTICS:

NUMBER OF CASES = 285
NUMBER OF ITEMS = 9
MEAN TOTAL SCORE = 6.246
STANDARD DEVIATION = 1.670
CRONBACH'S ALPHA = 0.514
ERROR OF MEASUREMENT = 1.165

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
57	0.954	0.954	0.757	0.0
118	0.947	0.947	0.436	0.0
119	0.698	0.698	0.287	0.0
120	0.375	0.377	0.232	0.351
121	0.596	0.596	0.391	0.0
122	0.965	0.965	0.876	0.0
123	0.677	0.684	0.366	1.053
124	0.604	0.604	0.351	0.0
125	0.428	0.428	0.129	0.0

129 CLASSIFYING (18 items; 1/4 of population)

This scale requires the child to form classes based on size, shape, or color and on combinations of these attributes (e.g., red triangles, smallest circle, all shapes the same size). In addition, for five items the child is required to state which of two classes has more members after he has constructed the classes. Most of the items use geometric shapes for the test materials; however, three items use objects and one uses pictured objects. This scale is an extension of 128, 130, and 145.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 57, 60, 62, 65, 67, 69, 118 - 129   Pages 180 - 197

SCALE STATISTICS:

NUMBER OF CASES = 285
NUMBER OF ITEMS = 18
MEAN TOTAL SCORE = 13.523
STANDARD DEVIATION = 2.848
CRONBACH'S ALPHA = 0.700
ERROR OF MEASUREMENT = 1.560

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
57	0.954	0.954	0.882	0.0
60	0.951	0.951	0.839	0.0
62	0.814	0.814	0.772	0.0
65	0.811	0.811	0.731	0.0
67	0.839	0.845	0.557	0.702
69	0.965	0.965	0.758	0.0
118	0.947	0.947	0.476	0.0
119	0.698	0.698	0.336	0.0
120	0.375	0.377	0.292	0.351
121	0.596	0.596	0.452	0.0
122	0.965	0.965	0.909	0.0
123	0.677	0.684	0.548	1.053
124	0.604	0.604	0.297	0.0
125	0.428	0.428	0.141	0.0
126	0.853	0.853	0.402	0.0
127	0.632	0.634	0.130	0.351
128	0.533	0.533	0.253	0.0
129	0.881	0.881	0.455	0.0

130 CLASSIFYING S-2 (6 items)

This scale includes selected items from 129. These items are 57, 60, 62, 65, 67 and 69.

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 6
MEAN TOTAL SCORE = 5.300
STANDARD DEVIATION = 1.229
CRONBACH'S ALPHA = 0.729
ERROR OF MEASUREMENT = 0.639

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
57	0.943	0.944	0.925	0.169
60	0.949	0.949	0.967	0.0
62	0.795	0.798	0.868	0.338
65	0.821	0.822	0.913	0.169
67	0.844	0.847	0.575	0.422
69	0.949	0.952	0.712	0.253

131 VISUAL MEMORY - PICTURES (4 items; 1/4 of population)

This scale measures visual memory for pictured objects. The child is shown a page with four or five drawings of familiar objects on it. The child is then shown a second page which pictures all but one of the objects on the preceding page. The child must recall which picture is absent on the second page that appeared on the first. If the child cannot recall what picture was taken away, he is then shown page 3 which has a new set of pictures including the one removed. The same pictures that are used in this scale are also used in 133 Visual Memory - Picture Cards, but each set of pictures is printed on a page of a booklet here while in 133 each picture is on a separate card. This scale is also similar to scales 114 Visual Memory - Objects and 135 Visual Memory - Shapes. It is the same as 017.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 138 - 141 Pages 198 - 208

SCALE STATISTICS:

NUMBER OF CASES = 290
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 1.379
STANDARD DEVIATION = 0.947
CRONBACH'S ALPHA = 0.049
ERROR OF MEASUREMENT = 0.924

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
138	0.331	0.331	0.004	0.0
139	0.486	0.486	0.139	0.0
140	0.355	0.355	-0.028	0.0
141	0.207	0.208	-0.005	0.345

133 VISUAL MEMORY - PICTURE CARDS (4 items; 1/4 of population)

This scale is designed to measure understanding of the same concepts measured in 131; however, in this scale each picture appears on an individual card rather than sets of pictures displayed on pages of a booklet. The pictures are exactly the same as those used in 131. The scale is also similar to 114 Visual Memory - Objects and 135 Visual Memory - Shapes.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 36 - 39 Pages 209 - 218

SCALE STATISTICS:

NUMBER OF CASES = 305
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 1.574
STANDARD DEVIATION = 1.099
CRONBACH'S ALPHA = 0.344
ERROR OF MEASUREMENT = 0.890

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
36	0.341	0.342	0.150	0.328
37	0.531	0.531	0.274	0.0
38	0.479	0.480	0.202	0.328
39	0.223	0.224	0.335	0.328

135 VISUAL MEMORY - SHAPES (4 items; 1/4 of population)

This scale is designed to measure memory for geometric shapes. It is similar to scales 114, 131, and 133 except that geometric shapes are used here rather than objects (114) or pictures (131, 133).

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 52 - 55 Pages 219 - 225

SCALE STATISTICS:

NUMBER OF CASES = 305
NUMBER OF ITEMS = 4
MEAN TOTAL SCORE = 2.430
STANDARD DEVIATION = 0.990
CRONBACH'S ALPHA = 0.266
ERROR OF MEASUREMENT = 0.848

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
52	0.892	0.892	0.110	0.0
53	0.672	0.672	0.141	0.0
54	0.541	0.541	0.206	0.0
55	0.325	0.329	0.250	1.311

137 ORDERING SETS OF OBJECTS (3 items; 1/4 of population)

This scale is designed to measure ability to arrange sets of objects in order of the set with the fewest members at one end and the set with the most members at the other end. It is similar to scale 139 Ordering Pictured Sets except that objects are used in this scale while pictures of objects are used in the other. Ordering by size is measured in scales 121, 123, 126, and 147.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 142 - 144   Pages 226 - 232

SCALE STATISTICS:

NUMBER OF CASES = 290
NUMBER OF ITEMS = 3
MEAN TOTAL SCORE = 1.610
STANDARD DEVIATION = 1.253
CRONBACH'S ALPHA = 0.787
ERROR OF MEASUREMENT = 0.578

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
142	0.521	0.521	0.824	0.0
143	0.541	0.541	0.768	0.0
144	0.548	0.548	0.769	0.0

139 ORDERING PICTURED SETS (INDIVIDUAL) (3 items; 1/4 of population)

This scale is designed to measure understanding of the same concept as 137; however, in this scale sets of pictures rather than objects are used as test materials. Ordering is also measured in scales 121, 123, 126, and 147, but in those scales ordering is by size rather than by number as in scale 139. It is the same as scale 303.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 145 - 147   Pages 233 - 239

```
SCALE STATISTICS:

  NUMBER OF CASES        =     290
  NUMBER OF ITEMS        =       3
  MEAN TOTAL SCORE       =   1.752
  STANDARD DEVIATION     =   1.262
  CRONBACH'S ALPHA       =   0.814
  ERROR OF MEASUREMENT   =   0.544

ITEM STATISTICS:

  ITEM        P'S         ADJ. P'S        N.S. BIS      PERCENT NT

   145       0.579         0.579           0.803          0.0
   146       0.583         0.583           0.837          0.0
   147       0.590         0.590           0.880          0.0
```

141 CONSERVATION - PICTURES (6 items; 1/4 of population)

This scale measures the child's ability to recognize equalities and inequalities between two sets. To achieve correct answers, the child must disregard spatial arrangement which sometimes conflicts perceptually with number and to utilize number only. The task required of the child in this conservation-like scale is to determine in which of two rows on a card there are more pictures, or whether there is the same number in both rows. The test was modeled after one devised by Herbert Zimiles. (See "The Development of Conservation and Differentiation of Number" by Herbert Zimiles in Monographs of the Society for Research in Child Development, 1966, p. 31, No. 6, Serial No. 108.) It is similar to 142 except that pictures are used here instead of dots. Scale 141 is the same as 314 and is part of the composite scale 146.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 148 - 153   Pages 240 - 243

```
SCALE STATISTICS:

  NUMBER OF CASES       =    290
  NUMBER OF ITEMS       =      6
  MEAN TOTAL SCORE      =  4.003
  STANDARD DEVIATION    =  1.835
  CRONBACH'S ALPHA      =  0.760
  ERROR OF MEASUREMENT  =  0.899

ITEM STATISTICS:

  ITEM       P'S        ADJ. P'S        N.S. BIS      PERCENT NT

   148      0.641        0.641           0.769           0.0
   149      0.928        0.928           0.421           0.0
   150      0.566        0.566           0.702           0.0
   151      0.562        0.562           0.756           0.0
   152      0.593        0.593           0.658           0.0
   153      0.714        0.714           0.645           0.0
```

142 CONSERVATION - DOTS (6 items; 1/4 of population)

As in scale 141, this scale is designed to measure ability to recognize equalities and inequalities of sets when conflicting perceptual cues are present. It includes, however, a measure of the child's ability to disregard size as well as spatial arrangement and to utilize number only. In this scale dots rather than flags and shields are used as test materials. It is the same as 315 and forms part of the composite scale 146.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 154 - 159 Pages 244 - 247

```
SCALE STATISTICS:

  NUMBER OF CASES        =     290
  NUMBER OF ITEMS        =       6
  MEAN TOTAL SCORE       =   4.310
  STANDARD DEVIATION     =   1.419
  CRONBACH'S ALPHA       =   0.577
  ERROR OF MEASUREMENT   =   0.923

ITEM STATISTICS:

  ITEM      P'S       ADJ. P'S        N.S. BIS     PERCENT NT

  154      0.845       0.845           0.431         0.0
  155      0.869       0.869           0.384         0.0
  156      0.548       0.548           0.583         0.0
  157      0.745       0.745           0.306         0.0
  158      0.438       0.438           0.506         0.0
  159      0.866       0.869           0.438         0.345
```

143 RESPONSE TO VERBAL DIRECTIONS (1 item)

This scale is a tester rating based on the child's compliance or attempted compliance with the directions given by the tester. This scale is the same as 022, 212, and 317.

The item which makes up this scale comes from Form K-02 which is reproduced elsewhere in this report. The item number and page reference are listed below.

Item 160 Page 248

TESTER RATING	PERCENT	SAMPLE SIZE
No compliance	0.2	1185
Little compliance	2.0	
Some compliance	15.0	
Full compliance	82.8	

144 ATTENTION TO TASKS (1 item)

This is a tester rating based on the child's attentiveness to the tasks presented in the test. This scale is the same as 023, 213, and 318.

The item which makes up this scale comes from Form K-02 which is reproduced elsewhere in this report. The item number and page reference are listed below.

Item 161 Page 249

TESTER RATING	PERCENT	SAMPLE SIZE
Attended well to all tasks	77.9	1185
Attended well to some tasks	12.4	
Attention wandered periodically	7.3	
Inattentive	2.4	
No rating	0.1	

Kindergarten
Spring

Form K-02
Scale 145

145 CLASSIFYING S-3 (5 items)

This scale includes selected items from 129. These items are 57, 60, 62, 67, and 69. It is the same as 211.

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 5
MEAN TOTAL SCORE = 4.479
STANDARD DEVIATION = 0.954
CRONBACH'S ALPHA = 0.637
ERROR OF MEASUREMENT = 0.574

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
57	0.943	0.944	1.032	0.169
60	0.949	0.949	1.064	0.0
62	0.795	0.798	0.509	0.338
67	0.844	0.847	0.605	0.422
69	0.949	0.952	0.676	0.253

146 **CONSERVATION COMPOSITE** (12 items; 1/4 of population)

This scale is a composite of 141 and 142. It is the same as 304.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 148 - 159 Pages 240 - 247

SCALE STATISTICS:

NUMBER OF CASES = 290
NUMBER OF ITEMS = 12
MEAN TOTAL SCORE = 8.314
STANDARD DEVIATION = 3.016
CRONBACH'S ALPHA = 0.818
ERROR OF MEASUREMENT = 1.288

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
148	0.641	0.641	0.844	0.0
149	0.928	0.928	0.565	0.0
150	0.566	0.566	0.810	0.0
151	0.562	0.562	0.752	0.0
152	0.593	0.593	0.636	0.0
153	0.714	0.714	0.627	0.0
154	0.845	0.845	0.561	0.0
155	0.869	0.869	0.469	0.0
156	0.548	0.548	0.755	0.0
157	0.745	0.745	0.446	0.0
158	0.438	0.438	0.636	0.0
159	0.866	0.869	0.408	0.345

Kindergarten
Spring

Form K-02
Scale 147

147 ORDERING COMPOSITE (9 items)

This scale is a composite of 121, 123, and 126.

The items which make up this scale come from Form K-02 which is reproduced elsewhere in this report. The item numbers and page references are listed below.

Items 56, 58, 59, 61, 63, 64, 66, 68, 70 Pages 165 - 179

SCALE STATISTICS:

NUMBER OF CASES	=	1185
NUMBER OF ITEMS	=	9
MEAN TOTAL SCORE	=	5.823
STANDARD DEVIATION	=	3.698
CRONBACH'S ALPHA	=	0.957
ERROR OF MEASUREMENT	=	0.769

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
56	0.662	0.662	1.034	0.0
58	0.662	0.662	1.075	0.0
59	0.681	0.681	1.071	0.0
61	0.684	0.685	1.024	0.084
63	0.652	0.655	1.097	0.422
64	0.673	0.675	1.098	0.169
66	0.600	0.600	1.025	0.0
68	0.625	0.626	1.080	0.084
70	0.581	0.582	1.035	0.084

151 COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS S-2 (6 items)

This scale includes selected items from 110. These items are 17 through 19 and 21 through 23. It is the same as 026, 216, and 324.

```
SCALE STATISTICS:

   NUMBER OF CASES        =    1185
   NUMBER OF ITEMS        =       6
   MEAN TOTAL SCORE       =   4.024
   STANDARD DEVIATION     =   1.971
   CRONBACH'S ALPHA       =   0.807
   ERROR OF MEASUREMENT   =   0.866

ITEM STATISTICS:

   ITEM       P'S        ADJ. P'S        N.S. BIS     PERCENT NT

    17       0.659        0.659          0.569         0.0
    18       0.841        0.841          0.770         0.0
    19       0.732        0.753          0.736          2.700
    21       0.640        0.752          0.804         14.937
    22       0.602        0.759          0.823         20.675
    23       0.550        0.749          0.798         26.498
```

152 COUNTING MEMBERS OF A GIVEN SET - PICTURE CARDS S-3 (8 items)

This scale includes selected items from 110. These items are 17 through 19 and 21 through 25. It is the same as 217 and 325.

SCALE STATISTICS:

NUMBER OF CASES = 1185
NUMBER OF ITEMS = 8
MEAN TOTAL SCORE = 4.722
STANDARD DEVIATION = 2.531
CRONBACH'S ALPHA = 0.837
ERROR OF MEASUREMENT = 1.023

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
17	0.659	0.659	0.581	0.0
18	0.841	0.841	0.753	0.0
19	0.732	0.753	0.723	2.700
21	0.640	0.752	0.816	14.937
22	0.602	0.759	0.842	20.675
23	0.550	0.749	0.852	26.498
24	0.422	0.627	0.744	32.658
25	0.277	0.457	0.632	39.494

153 COUNTING BUTTONS S-2 (5 items; 1/4 of population)

This scale includes selected items from 106. These items are 72, and 74 through 77. It is the same as 027 and 326.

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 5
MEAN TOTAL SCORE = 4.320
STANDARD DEVIATION = 1.346
CRONBACH'S ALPHA = 0.850
ERROR OF MEASUREMENT = 0.521

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
72	0.933	0.933	1.053	0.0
74	0.877	0.892	1.143	1.667
75	0.837	0.866	0.992	3.333
76	0.857	0.911	1.130	6.000
77	0.817	0.891	1.000	8.333

154 **COUNTING BUTTONS** **S-3** (7 items; 1/4 of population)

This scale includes selected items from 106. These items are 72, and 74 through 79. It is the same as 327.

SCALE STATISTICS:

NUMBER OF CASES = 300
NUMBER OF ITEMS = 7
MEAN TOTAL SCORE = 5.767
STANDARD DEVIATION = 1.985
CRONBACH'S ALPHA = 0.877
ERROR OF MEASUREMENT = 0.695

ITEM STATISTICS:

ITEM	P'S	ADJ. P'S	N.S. BIS	PERCENT NT
72	0.933	0.933	1.002	0.0
74	0.877	0.892	1.169	1.667
75	0.837	0.866	1.004	3.333
76	0.857	0.911	1.088	6.000
77	0.817	0.891	1.069	8.333
78	0.683	0.765	0.797	10.667
79	0.763	0.881	1.001	13.333

APPENDICES

APPENDIX A

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

by David Wechsler

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The *Wechsler Preschool and Primary Scale of Intelligence* (WPPSI) is a downward extension of the *Wechsler Intelligence Scale for Children* (WISC) to cover the age range of 4 to 6 1/2 years. As with the WISC, a general intelligence score is obtained as well as separate performance and verbal scores. No reading is required; all directions and items using words are read to the child. For all tests except *Animal House*, the test is stopped after a specified number of consecutive failures.

The complete WPPSI, consisting of five verbal and five performance scales, was administered to a 30 percent sample of ELMA kindergarteners, and four subscales (*Vocabulary*, *Similarities*, *Picture Completion* and *Block Design*) were given to the other 70 percent of the ELMA kindergarteners. Previous research with the WISC had indicated that these four subscales would be good predictors of the total score, and subsequent analyses proved this group of subscales to be, in fact, a good predictor of performance on the complete test. The tests were administered by ELMA testers to each child individually during the early spring of kindergarten.

The WPPSI scaled scores for a child are obtained from the tables in the WPPSI manual by using the child's chronological age at the time of testing and the child's raw score on the subscales.

M101 WPPSI INFORMATION RAW SCORE (23 items)

This is the number of points received on the *Wechsler Preschool and Primary Scale of Intelligence, Test 1 - Information*. It is recorded for only those children who took the complete WPPSI. The child is asked to give information about objects which the average child is likely to have been exposed to outside of school. Scores for this scale are available for only a 30 percent random sample of ELMA students.

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 13.542
STANDARD DEVIATION = 3.170

M102 WPPSI VOCABULARY RAW SCORE (22 items)

This is the number of points received on the *Wechsler Preschool and Primary Scale of Intelligence, Test 3 - Vocabulary*. The child is asked to define words of varying difficulty.

SCALE STATISTICS:

NUMBER OF CASES = 1120
MEAN TOTAL SCORE = 17.824
STANDARD DEVIATION = 6.486

M103 WPPSI ARITHMETIC RAW SCORE (20 items)

This is the number of points received on the *Wechsler Preschool and Primary Scale of Intelligence, Test 5 - Arithmetic*. It is recorded for only those children who took the complete WPPSI. For the first four items, cards printed with pictures of objects are used to measure basic quantitative concepts without the explicit use of numbers. For the next four items the child is asked to count blocks. The final 12 items require the child to solve word problems within the 30 seconds allowed for each item. Scores for this scale are available for only a 30 percent random sample of ELMA students.

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 11.213
STANDARD DEVIATION = 2.987

M104 WPPSI SIMILARITIES RAW SCORE (16 items)

This is the number of points received on the Wechsler Preschool and Primary Scale of Intelligence, Test 8 - Similarities. For the first ten items, the child supplies a missing word at the end of a sentence; for the last six items, the child is to explain briefly in what way two objects named by the tester are alike.

SCALE STATISTICS:

NUMBER OF CASES = 1123
MEAN TOTAL SCORE = 11.082
STANDARD DEVIATION = 4.010

M105 WPPSI COMPREHENSION RAW SCORE (15 items)

This is the number of points received on the Wechsler Preschool and Primary Scale of Intelligence, Test 10 - Comprehension. It is recorded for only those children who took the complete WPPSI. The child is asked to give the reasons why certain activities are engaged in or abstained from and to state actions to be taken under specified circumstances. Scores for this scale are available for only a 30 percent random sample of ELMA students.

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 15.301
STANDARD DEVIATION = 5.028

M106 WPPSI ANIMAL HOUSE RAW SCORE (20 items)

This is the score received on the Wechsler Preschool and Primary Scale of Intelligence, Test 2 - Animal House. It is recorded for only those children who took the complete WPPSI. The child is to associate four different colors with four different animals and to place colored cylinders in the appropriate holes under the pictured animals. This is a timed test. Scores for this scale are available for only a 30 percent random sample of ELMA students.

SCALE STATISTICS:

NUMBER OF CASES = 357
MEAN TOTAL SCORE = 44.888
STANDARD DEVIATION = 12.349

M107 WPPSI PICTURE COMPLETION RAW SCORE (23 items)

This is the number of points received on the *Wechsler Preschool and Primary Scale of Intelligence*, *Test 4 - Picture Completion*. The child is to discover and name the missing part of each of a series of incompletely drawn pictures.

SCALE STATISTICS:

NUMBER OF CASES = 1124
MEAN TOTAL SCORE = 12.817
STANDARD DEVIATION = 4.002

M108 WPPSI MAZES RAW SCORE (10 items)

This is the number of points received on the *Wechsler Preschool and Primary Scale of Intelligence*, *Test 6 - Mazes*. It is recorded for only those who took the complete WPPSI. The child is to draw a line through simple mazes without entering any blind alleys and to complete the maze within a limited time. Scores for this scale are available for only a 30 percent random sample of ELMA students.

SCALE STATISTICS:

NUMBER OF CASES = 357
MEAN TOTAL SCORE = 12.513
STANDARD DEVIATION = 6.335

M109 WPPSI GEOMETRIC DESIGN RAW SCORE (10 items)

This is the number of points received on the *Wechsler Preschool and Primary Scale of Intelligence*, *Test 7 - Geometric Design*. It is recorded for only those children who took the complete WPPSI. The child is given a pencil and paper and is asked to draw a geometric figure (or figures) which is presented. Scores for this scale are available for only a 30 percent random sample of ELMA students.

SCALE STATISTICS:

NUMBER OF CASES = 357
MEAN TOTAL SCORE = 10.899
STANDARD DEVIATION = 4.924

M110 WPPSI BLOCK DESIGN RAW SCORE (10 items)

This is the number of points received on the Wechsler Preschool and Primary Scale of Intelligence, Test 9 - Block Design. The child is to construct a given geometric design by manipulating eight flat, square blocks. All the blocks are red on one side; the reverse side of some blocks is white while others are divided, on the diagonal into half red and half white. For the first six items the child is to make the design after the examiner has first constructed a model, but for the last four items the child is to reproduce designs from pictured designs presented on cards. The child is given two chances to reproduce the block designs and each attempt is timed.

SCALE STATISTICS:

NUMBER OF CASES = 1123
MEAN TOTAL SCORE = 12.841
STANDARD DEVIATION = 4.131

M111 WPPSI INFORMATION SCALED SCORE (See M101)

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 9.893
STANDARD DEVIATION = 2.741

M112 WPPSI VOCABULARY SCALED SCORE (See M102)

SCALE STATISTICS:

NUMBER OF CASES = 1120
MEAN TOTAL SCORE = 9.794
STANDARD DEVIATION = 2.994

M113 WPPSI ARITHMETIC SCALED SCORE (See M103)

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 9.750
STANDARD DEVIATION = 2.705

M114 WPPSI SIMILARITIES SCALED SCORE (See M104)

SCALE STATISTICS:

NUMBER OF CASES = 1123
MEAN TOTAL SCORE = 10.108
STANDARD DEVIATION = 2.849

M115 WPPSI COMPREHENSION SCALED SCORE (See M105)

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 10.062
STANDARD DEVIATION = 2.942

M116 WPPSI ANIMAL HOUSE SCALED SCORE (See M106)

SCALE STATISTICS:

NUMBER OF CASES = 357
MEAN TOTAL SCORE = 9.930
STANDARD DEVIATION = 2.969

M117 WPPSI PICTURE COMPLETION SCALED SCORE (See M107)

SCALE STATISTICS:

NUMBER OF CASES = 1124
MEAN TOTAL SCORE = 9.786
STANDARD DEVIATION = 2.719

M118 WPPSI MAZES SCALED SCORE (See M108)

SCALE STATISTICS:

NUMBER OF CASES = 357
MEAN TOTAL SCORE = 9.445
STANDARD DEVIATION = 2.846

M119 WPPSI GEOMETRIC DESIGN SCALED SCORE (See M109)

SCALE STATISTICS:

NUMBER OF CASES = 357
MEAN TOTAL SCORE = 10.025
STANDARD DEVIATION = 3.070

M120 WPPSI BLOCK DESIGN SCALED SCORE (See M110)

SCALE STATISTICS:

NUMBER OF CASES = 1123
MEAN TOTAL SCORE = 10.500
STANDARD DEVIATION = 2.766

M121 WPPSI SHORT FORM VERBAL SCALED SCORE

This is the sum of the scaled scores for M112 and M114.

SCALE STATISTICS:

NUMBER OF CASES = 1120
MEAN TOTAL SCORE = 19.909
STANDARD DEVIATION = 4.960

M122 WPPSI SHORT FORM PERFORMANCE SCALED SCORE

This is the sum of the scaled scores for M117 and M120.

SCALE STATISTICS:

NUMBER OF CASES = 1123
MEAN TOTAL SCORE = 20.291
STANDARD DEVIATION = 4.613

M123 WPPSI SHORT FORM TOTAL SCALED SCORE

This is the sum of the scaled scores for M112, M114, M117, and M120.

SCALE STATISTICS:

NUMBER OF CASES = 1119
MEAN TOTAL SCORE = 40.212
STANDARD DEVIATION = 8.130

M124 WPPSI LONG FORM VERBAL SCALED SCORE

This is the sum of the scaled scores for M111 through M115. It is recorded for only those children who took the complete form of the Wechsler Preschool and Primary Scale of Intelligence.

SCALE STATISTICS:

NUMBER OF CASES = 355
MEAN TOTAL SCORE = 49.445
STANDARD DEVIATION = 11.235

M125 WPPSI VERBAL I.Q.

This is the verbal intelligence quotient obtained from scaled scores of M111 through M115. It is recorded for only those children who took the complete form of the Wechsler Preschool and Primary Scale of Intelligence.

SCALE STATISTICS:

NUMBER OF CASES = 355
MEAN TOTAL SCORE = 99.163
STANDARD DEVIATION = 14.064

M126 WPPSI LONG FORM PERFORMANCE SCALED SCORE

This is the sum of the scaled scores for M116 through M120. It is recorded for only those children who took the complete form of the Wechsler Preschool and Primary Scale of Intelligence.

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 49.256
STANDARD DEVIATION = 10.435

M127 WPPSI PERFORMANCE I.Q.

This is the performance intelligence quotient obtained from the scaled scores for M116 through M120. It is recorded for only those children who took the complete form of the Wechsler Preschool and Primary Scale of Intelligence.

SCALE STATISTICS:

NUMBER OF CASES = 356
MEAN TOTAL SCORE = 99.020
STANDARD DEVIATION = 14.160

M128 WPPSI LONG FORM TOTAL SCALED SCORE

This is the sum of the scaled scores for M111 through M120. It is recorded for only those children who took the complete form of the Wechsler Preschool and Primary Scale of Intelligence.

SCALE STATISTICS:

NUMBER OF CASES = 354
MEAN TOTAL SCORE = 98.754
STANDARD DEVIATION = 19.711

M129 WPPSI FULL SCALE I.Q.

This is the full scale intelligence quotient obtained from the scaled scores for M111 through M120. It is recorded for only those children who took the complete form of the Wechsler Preschool and Primary Scale of Intelligence.

SCALE STATISTICS:

NUMBER OF CASES = 354
MEAN TOTAL SCORE = 99.093
STANDARD DEVIATION = 14.156

APPENDIX B

METROPOLITAN READINESS TESTS

by Gertrude H. Hildreth, Ph. D.
Nellie L. Griffiths, M. A.
Mary E. McGauvran, Ed. D

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The Metropolitan Readiness Tests were devised to measure the extent to which school beginners have developed in the several skills and abilities that contribute to readiness for first grade instruction. Among the chief factors that contribute to readiness for beginning school work are linguistic attainments and aptitudes, visual and auditory perception, muscular coordination and motor skills, number knowledge, and the ability to follow directions and to pay attention to group work. The tests are designed for testing pupils at the end of the kindergarten year or the beginning of the first grade.

The Form A of the Metropolitan Readiness Tests was administered by the smaller test center to its kindergarteners in the spring (May, 1967) and the Form B by the larger center to ELMA first graders in the fall (October, 1967). The tests were administered by classroom teachers in a group situation at both centers.

R201 WORD MEANING RAW SCORE (16 items)

This scale is the total number of correct responses on the Metropolitan Readiness Test 1 - Word Meaning which is designed to measure vocabulary. The pupil selects from three pictures the one that illustrates the word the examiner names.

SCALE STATISTICS:

NUMBER OF CASES = 700
TOTAL MEAN SCORE = 9.181
STANDARD DEVIATION = 3.037

R202 LISTENING RAW SCORE (16 items)

This scale is the total number of correct responses on the Metropolitan Readiness Test 2 - Listening which is designed to measure ability to comprehend phrases and sentences instead of individual words. The pupil selects from three pictures the one which portrays a situation or event the examiner describes briefly.

SCALE STATISTICS:

NUMBER OF CASES = 710
TOTAL MEAN SCORE = 10.486
STANDARD DEVIATION = 2.775

R203 MATCHING RAW SCORE (14 items)

This scale is the total number of correct responses on the Metropolitan Readiness Test 3 - Matching which is designed to measure visual perception involving the recognition of similarities. The pupil marks one of three pictures which matches a given picture.

SCALE STATISTICS:

NUMBER OF CASES = 708
TOTAL MEAN SCORE = 8.918
STANDARD DEVIATION = 3.474

R204 ALPHABET RAW SCORE (16 items)

This scale is the total number of correct responses on the Metropolitan Readiness Test 4 - Alphabet which is designed to measure ability to recognize lower-case letters of the alphabet. The pupil chooses a letter named from among four alternatives.

SCALE STATISTICS:

NUMBER OF CASES = 710
TOTAL MEAN SCORE = 11.925
STANDARD DEVIATION = 4.033

R205 NUMBERS RAW SCORE (26 items)

This scale is the total number of correct responses on the Metropolitan Readiness Test 5 - Numbers which is designed to measure knowledge of number concepts, ability to manipulate quantitative relationships, recognition of and ability to produce number symbols, and related knowledge such as concepts of money.

SCALE STATISTICS:

NUMBER OF CASES = 707
TOTAL MEAN SCORE = 12.914
STANDARD DEVIATION = 4.241

R206 COPYING RAW SCORE (14 items)

This scale is the total number of correct responses on the Metropolitan Readiness Test 6 - Copying which is designed to measure a combination of visual perception and motor control. The pupil is asked to copy a series of designs which include geometric shapes, letters, and numerals.

SCALE STATISTICS:

NUMBER OF CASES = 705
TOTAL MEAN SCORE = 5.350
STANDARD DEVIATION = 2.600

R207 TOTAL RAW SCORE (102 items)

This scale is the total number of correct responses for scales R201 - R206.

SCALE STATISTICS:

NUMBER OF CASES = 841
TOTAL MEAN SCORE = 55.898
STANDARD DEVIATION = 16.561

R208 PERCENTILE RANK

This is derived from R207 by using the publisher's norms given in the manual for the test.

SCALE STATISTICS:

NUMBER OF CASES = 841
TOTAL MEAN SCORE = 54.057
STANDARD DEVIATION = 27.745

R209 DRAW A MAN

This is an optional test. It was administered to a very small proportion of the ELMA population, and, therefore, is not utilized in any analyses.

APPENDIX C

Formulas for Item and Scale Statistics

The formulas for the statistics presented for each ELMA scale will be shown. The statistics were obtained from the SMSG Item Analysis Program(1). This program handles only dichotomous items.

Let X_{ij} be the score for case j on item i.

The items were scored so that

$$X_{ij} = \begin{cases} 1, & \text{if case } j \text{ responds correctly to item } i \\ 0, & \text{otherwise.} \end{cases}$$

Let

n = total number of cases

n_i = the number who attempted item i

k = total number of items on the scale.

The Item Mean, P, is

$$\overline{X}_i = \frac{1}{n} \sum_{j=1}^{n} X_{ij}$$

and the Adjusted Item Mean, ADJ. P, is

$$\hat{X}_i = \frac{1}{n_i} \sum_{j=1}^{n} X_{ij}$$

$$\text{PERCENT NT} = \frac{n - n_i}{n}$$

The Non-spurious Biserial Correlation coefficient, N.S. BIS, is

$$r = \frac{r_{bis}\,\sigma - \frac{pq}{z}}{\sqrt{\sigma^2 + pq - 2r_{bis}\,\sigma z}} ,$$

---

(1) For a description of the computer program for the IBM 360/67, see the unpublished SMSG paper "Item Analysis Program" by W. E. Geeslin and Ed Cruz.

where

$p = \overline{X}_i$ = proportion of cases getting item correct

$q = 1 - \overline{X}_i$ = proportion of cases getting item incorrect

Z = ordinate for unit normal curve at point where proportion of cases cut off is p

Y_{ij} = the total scale score with item i removed for case j

σ = the standard deviation of the Y_{ij}'s

d = difference in mean score of the Y_{ij}'s for those cases with item i correct and those cases with item i incorrect

$r_{bis} = \frac{pq}{z}\left(\frac{d}{\sigma}\right)$.

The scale score for case j is

$$S_j = \sum_{i=1}^{k} X_{ij} .$$

The scale MEAN TOTAL SCORE is

$$\overline{S} = \frac{1}{n} \sum_{j=1}^{n} S_j = \sum_{i=1}^{k} \overline{X}_i .$$

The total scale variance is

$$V_t = \frac{1}{n} \sum_{j=1}^{n} S_j^2 - \overline{S}^2 .$$

The total scale STANDARD DEVIATION is

$$S_t = \sqrt{V_t} .$$

The item variance for item i is

$$V_i = \frac{\Sigma X_i^2 - \frac{(\Sigma X_i)^2}{n}}{n}$$

CRONBACH'S ALPHA (reliability) is

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k} V_i}{V_t}\right).$$

The standard ERROR OF MEASUREMENT is

$$S_e = \sqrt{V_t - \alpha V_t}$$

$$= S_t \sqrt{1 - \alpha}$$

ELMA REPORTS

No. 1. A Longitudinal Study of Mathematical Achievement in the Primary School Years: Description of Design, Sample, and Factor Analyses of Tests.

No. 2. A Longitudinal Study of Mathematical Achievement in the Primary School Years: Curriculum and Socio-Economic Comparisons and Predictions from Previous Achievement.

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Published by the School Mathematics Study Group, Stanford
University, and available from A. C. Vroman, Inc.,
2085 E. Foothill Blvd., Pasadena, Calif. 91109